TEXTILE BULLETIN

Vol. 50 JULY 9, 1936 No. 19

THEY PASSED AWAY

Once Mastodons and Mammoths and Huge Dinosaurs roamed the Earth lords of all they surveyed ◆ ◆ ◆ They exist today only in Bones they left to tell an inquisitive modern world the tale of their once Mighty Bodies

They Passed Away ◆ Their Mighty Bodies were not Equipped to Meet Changing World Conditions

Haile Selassie Ruled Ethiopia from the Throne occupied by his Ancestors since the days of King Solomon

His Power is Gone and He is a Fugitive with neither Throne nor Home ◆ He was Not Equipped for Modern Conditions of Warfare

Haile Selassie Might Have Been Equipped with Tanks
and Airplanes and Poison Gas
He Wasn't ◆ and ◆ Had No Chance to Win

What Is the Equipment of Your Mill ?
Modern High Speed Looms Can Help You ◆ IF ◆
IF They Are in Your Mill

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E. I. DU PONT DE NEMOURS & CO., INC.

Organic Chemicals Department, Dyestuffs Division, Wilmington, Delaware

TEXTILE BULLETIN

VOL. 50—NO. 19 JULY 9, 1936

The Effect of The Tarriff Upon The Textile Industry*

By Fred W. Steele

Manager Grinnell Mfg. Corp., New Bedford, Mass.

BEFORE we get down to the serious discussion of the effect of the tariff on cotton textiles, let me briefly create a picture of the New England cotton textile industry of the present time, and explain why the picture is not a roseate masterpiece.

The first evidence of the decline in the industry is traceable back to the war period, at a time when nearly all industrial countries were engaged in war and their manufacturing productive facilities limited.

Our country was overwhelmed with demands for the products of mines, farms and factories. Cotton goods were among the most desired of products, and to meet this abnormal demand there was extensive plant expansion. A crop of new mills appeared all along the Atlantic seaboard.

With the war over and the countries of the world adjusting themselves to normal conditions, the demand for the products of our mills slumped. It was inevitable that this condition would develop just as thunder follows lightning. The old inexorable law of supply and demand functioned swiftly and severely. This is when the depression started in the cotton industry.

About this time, in 1921, we had in New England 449 cotton mills employing 211,441 wage earners; then for over a decade mill liquidation was a common occurrence. You have all seen the results as you travel around. What was formerly a neat New England village looks a little seedy today—the old mill crumbling to pieces with dry rot, the cottages and tenements shabby and disheveled. As you pass through larger communities you notice the smokeless chimneys and yawning holes in the ground where once there stood cotton mills.

The tragic picture is the small one-industry village where the hum of whirling spindles and click of the shuttling bobbin is stilled, and only the spider is busy spinning its gossamer web in some shadowy corner of the old mill.

In 1933 we had left in New England 194 mills and 91,566 workers.

On July 17, 1933, the National Recovery Act came into existence. This was a purgatorial period, wherein if we observed the provisions of the code we would gain the industrial heaven. Most of the industry behaved nicely and many errors and unwholesome practices were corrected. Regardless of whose head should wear the crown of merit we did, more or less, benefit by the NRA.

It was during the NRA days that we first felt the blast of Japanese competition. You all know that competition at its best is a very obstinate subject, but when it develops into unfair competition it is a major menace, and that is exactly what happened when unrestricted amounts of Japanese coolie labor produced goods were thrown into our markets and the prices of American goods demoralized.

Ordinarily as a condition like this becomes gradually apparent, business and industry expect the tariff law in effect at that moment to be sufficiently adequate to promptly and effectively adjust the competitive basis. That is what a tariff law is supposed to do. Let me read to you the preamble of the present Tariff Act:

"To provide revenue, to regulate commerce with foreign countries, to encourage the industries of the United States, to protect American labor, and for other purposes."

Most people are not conscious of the fact that the intent of the law is to protect the workingman's job, the community in which he lives, and the standard of living he enjoys as well as to protect industry that provides him employment. The law, if properly interpreted and administered, will do all these things.

I want to warn you not to be misled by the popular fallacy that the tariff benefits industry at the expense of labor, or the domestic consumer, or the farmer. And don't believe any of the other queer notions expounded by the idealistic internationalists, who don't know they don't know everything.

The fact is, labor and industry are not independent of each other, as many people and even some of our workers believe. Instead they are the most interdependent groups on this earth.

So if you investigate the function of a tariff law you

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*Address before University Club at Boston.

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will find in each instance where industry profited by its protective wing labor benefited also, for the tariff is responsible to a great extent in maintaining the relatively high wages of labor and the consequent respectable living standard.

The establishment of a tariff duty is to "equalize the difference in the costs of production, including transportation and other delivery charges, to the principal market in the United States of the domestic article." The rates in effect since 1930 did not do this, and this last increase will not either. I'll attempt to show you why they are inadequate.

Eighteen months ago when President Roosevelt was asked to raise the tariff rates against competing Japanese textile imports, the request was rejected by the Administration. They informed us that imports amounted to only one-tenth of 1 per cent of our total production. To the public generally, this made imports appear to be a mere trickling tributary into the stream of commerce.

We who were engaged in the manufacturing and marketing of the products of our American mills had an entirely different perspective of the situation; we anticipated a constant increase, and this is what happened:

	Sq. Yds.
Imports from Japan in 1933	1,115,713
in 1934	7,286,517
in 1935	36,470,753
First 4 months of 1936	27,741,173

The dismissal of our plea by the administration did not hinder us in continuing to demand attention, and we finally gained recognition.

On April 19, 1935, the Tariff Commission instituted an investigation with respect to cotton cloth, under provisions of Section 336 of the Tariff Act of 1930 in compliance with Senate Resolution 104.

Again on April 19, 1935, the commission by direction of the President also instituted an investigation under Section 3-E of the National Recovery Act.

Of course, there was only one investigation, and while the commission was busy collecting, studying and compiling the data for their report, our Department of State with sublime confidence, through its sincere but altruistic-minded secretary, made a gentlemen's agreement with the Japanese statesmen to the effect that Japan would voluntarily regulate and restrict these importations. This was in December, 1935.

No regulation by Japan was ever attempted. The imports increased in the regular channels, and in addition Japan shipped goods to Chinese ports for transshipment to America.

When we called the matter to the attention of the State Department, Secretary Hull replied:

"Importations of cotton piece goods from Japan did increase markedly in January as compared with the rate of importation of these goods from Japan during the last six months of 1935. In view of the assurances given by representatives of the Japanese Government to this Department in December, the January figures of imports from Japan were brought to the attention of the Japanese Ambassador just as soon as they were available, and the Japanese Embassy took the matter up immediately with the Foreign Office in Tokyo. I am sure that the question is being given serious consideration by the Japanese Government. We are awaiting definite response to our representations and it is our hope that the Japanese will be able voluntarily to control this situation. Should this prove impossible, then we shall certainly give further consideration to the entire problem. This Department and other agencies of the Government have been giving and will continue to give close attention and study to this matter."

We were expected to gulp this down with benign unconsciousness as a solution for our problem, but we didn't bite, it was not attractive enough bait. We continued our fight.

On April 17th of this year the Tariff Commission submitted to the President the report of their investigation, and on May 21st the President released his proclamation that duties on Japanese imports were increased an average of 42.6 per cent.

Examination of the information obtained by the investigation presents a fairly accurate picture of world-wide trade in cotton textiles, particularly so of Japan.

The first interesting statement I found in the report was this: "In quantity imports in the calendar year 1935, amounting to 62,108,000 square yards, were therefore not abnormal. In price they were *much less than normal*. This was due to the fact that the bulk coming from Japan in that year was not only coarser yarn numbers but of unusually low price."

This is rather a clumsy and apologetic statement. They might well have stated in an understandable way that our European competitors, England and Switzerland, make a fine grade of goods—specialties—and charge a decent price for them. They could have explained that because Japan depreciated the yen from 49 cents to 29 cents, and because of dominated coolie labor the price was unusually low; and further they might have emphasized the fact that it is this price feature rather than the bulk of shipments that is raising havoc with our industry.

"The imports from Japan in 1934-35, averaging slightly under 40s average yarn number, have been mainly mulls and shirtings, with a smaller amount of ginghams and negligible amounts of prints and other fabrics. The mulls and shirtings, plain-woven of gray yarns from about 40s to 46s, are entered mainly in the bleached condition, with a smaller amount piece-dyed, mostly in light shades; the statutory average yarn number varies below and above 40s, according to the extent of the bleaching and sizing, with the majority around 41s. These fabrics are bought most largely for use in making nightgowns, children's underwear, and men's handkerchiefs. There were no imports of unbleached cotton cloths from Japan in 1934 nor in 1935 prior to December when a small amount was entered from warehouse. Over 90 per cent of the cotton cloths from Japan are entered in the bleached condition and practically all of these are plain-woven.

"The accumulation of Japanese bleached cloth in warehouse is significant from two somewhat diverse points of view. It indicates, first, that importers are having some difficulty in marketing the fabric as it arrives, and, on the other hand, that there is an accumulation of import stocks overhanging the domestic market which may mean more severe competition in the process of distribution."

Here again the price factor could be stressed. A sudden dumping of this warehouse stock would disrupt the market to an incalculable extent.

These low Japanese prices are based on low production costs and the commission, in determining a comparable cost basis, "accepted the weighted average invoice prices of such cloth imported from Japan as evidence of production costs." There's generosity for you. Understand that the rates are established, as I've already stated, on the difference in costs of production. The contributing factors that enable the Japanese to sell their product at such low invoice prices were completely forgotten by the commission experts in establishing equalizing duties, yet they are enumerated in considerable detail in the report.

Japan as a cotton manufacturing nation ranks fifth in number of spindles, third in number of power looms, second in bales of cotton consumed, and first in quantity of cotton cloth exported. Cotton cloth has supplanted silk as the main export commodity of Japan.

Japan has captured nearly all our foreign trade in South America and the Orient. In the Philippine Islands we formerly supplied 70 per cent of the cloth; now we are supplying only 30 per cent. We can not compete with Japan's prices anywhere.

A considerable part of the cloth for domestic use in Japan is produced on hand looms, partly in the homes but more largely in small establishments of 5 to 50 looms each.

There are between 4 and 5 hundred thousand operatives in the cotton industry of Japan and 85 per cent of them are females, most of them between 14 and 18 years of age. They are paid 19 cents a day for spinning and 21 cents a day for weaving. Compare this with the lowest minimum we pay in this country of 30½ cents per hour.

"The young girls who constitute the bulk of the operatives in the cotton mills are recruited on contracts ranging from 1 to 3 years. In most cases the girls enter the factory to earn a marriage dowry or to secure a loan for their parents. Few serve more than one contract period, with the result that the labor turnover is from 40 to 60 per cent per year, and the mills have a relatively small nucleus of permanent workers. During recent years, with the main rural occupations, farming and silk-cocoon production, unremunerative, the labor supply has been unusually plentiful, with the result that the cotton mills have been able to reduce the wages offered. The girls are housed in dormitories where they are under control of the management. Such lodging is free and meals are furnished at less than cost. The cost to the mill above the wages paid, for recruiting expenses, lodging and food subsidy, and welfare work, is estimated to average about 25 per cent of the actual money wages.

"An outstanding feature of the Japanese cotton industry development in the past decade has been the advance in "rationalization" by the more general adoption of the most up-to-date machinery, organization, technique and control. This has resulted in an increase in the amount of machinery tended per operative and in a decrease in costs of production, also an improvement in quality of goods produced. Although the bulk of the looms are still non-automatic there is a steady increase in the number of automatic looms. Most of the newer mills have long-draft spinning and some have long-draft roving frames; and the general tendency is toward the most labor-saving machinery and methods; the use of electricity in individual drives is increasing."

I hope you noticed the terms "rationalization, organization, technique, and control." The report neglected to state that the Japanese cotton industry is controlled by six families, hence they can do a great many things we wouldn't dare attempt.

And here is the conclusion of the commission:

"The commission finds it shown by the investigation (a) that the duties expressly fixed by statute on cotton cloth, bleached, printed, dyed, or colored, containing yarns the average number of which exceed No. 30 but does not exceed No. 50, do not equalize the differences in the costs of production, including transportation and other delivery charges to the principal market in the United States, of the domestic article and the like or similar foreign article produced in the principal competing country; and (b) that the rates of duty shown by the investigation to be necessary to equalize such differences in the costs of production are 18½ per cent ad valorem and, in addition thereto, for each number, one-half of 1 per cent ad valorem, on cotton cloth, bleached, containing yarns the average number of which exceeds No. 30 but does not exceed No. 50; and 22½ per cent ad valorem and, in addition thereto, for each number, one-half of 1 per cent ad valorem, on cotton cloth, printed, dyed, or colored, containing yarns the average number of which exceeds No. 30 but does not exceed No. 50."

Simply, this means an average increase of 42 per cent on a limited range of cloth. Will this be adequate? I don't believe it will—there is nothing to stop the Japs from dropping or raising the quality of their products into the classes not covered by the commission's limitations.

Even if they continue on the present basis it will not stop them. Using the commission's formula on a sample comparison of American and Japanese cloth of as near a comparable construction as possible, we find this result:

Comparing the costs of several typical print cloth constructions with Japanese costs, and allowing for overhead in Japan to equal overhead in this country (which it probably does not), but making the change in labor costs, the following comparison is arrived at. Under the 1930 tariff rate, an average of 35s yarn would carry a duty of 25.25 per cent, and under the increase provided by the flexible rates announced May 21, 1936, the same average yarn would carry 35.8 per cent, having the following effect on Japanese costs:

	Domestic	*Japan*
Overhead	.0741	.0741
Labor	.1007	.0077
Cotton	.1212	.1212

	Value	*Rate*	*Duty*	*Landed Cost*
Old tariff rate	20.30	25.25	.0513	.2543
New tariff rate	20.30	35.80	.0726	.2756

This supports the contention I make that this increase is inadequate.

While my remarks reflect my own personal views, they

(*Continued on Page 20*)

Notes On Cotton Warp Sizing

By Ralph Hart
Hart Products Corporation

Sixth of A Series of Articles on This Important Subject

(*Continued from last week*)

Weight of Rolls.—The first or front squeeze roll helps the penetration of the size and removes the excess from the yarn. The second roll or the one nearest the cylinders, also known as the finishing roll, completes the squeezing of the size into the yarn and prepares the latter for quicker and more uniform drying. The weights of the rolls seem to vary from 320 pounds to 575 pounds, some using the lighter weight for the first roll and others for the second one, although the former method seems to be preferred. On 22s yarn with a twist multiplier of 4.64, 3,000 ends per set, and a cloth construction of 96x64, one mill reports the weight of the first roll as 350 pounds and the second, as 500 pounds.

Covering the Rolls.—For good results, the squeeze rolls should be properly covered. One mill-man furnishes the following directions for covering the rolls. The rolls should first be painted with a good lead-paint, undiluted, to prevent rusting. When dry a second coat is applied and, while still wet, the roll is wrapped with about 4 layers of a 64x64 sheeting construction. The slasher blankets or cushions, which go on next, should first be shrunk as follows: About 5 yards for the first roll and 6 yards for the second roll are immersed in water at 90° F. and allowed to soak for 12 hours without further heating. The blankets are then carefully put on the rolls. The ends of blankets should not be trimmed for a day or so after they have been put on, but the selvages are tied with strings to prevent splashing of size on the floor.

In the above case a 16-ounce wool blanket was used. In another mill the blanket on the front roll is replaced by 2 pieces of burlap 7 yards in length and on the second roll by 1 piece of burlap 5 yards long, followed by two 6-yard lengths of slasher cloth. Another mill uses 4 yards of sheeting, followed successively by a cushion of 4 yards of composition cloth (70% cotton), 2½ yards of a 70% wool blanket, and finally with slasher cloth.

In changing blankets on the first or front roll, it is recommended that the older blanket be put on top, if two pieces of cloth are used; if only one piece is used, the blanket from the second roll is transferred to the first roll. It is claimed that the older and better-seasoned blanket cuts off the size better and prevents slipping of the yarn between the squeeze roll and the size roll. A fresh blanket on top tends to leave more size in the yarn. In changing slasher cloth on the second roll, it is suggested that it first be used on the front roll for several days. This will stretch the blanket and prevent the size-roll from slipping.

It is stated that slasher cloths should be removed for washing at intervals of three to four weeks, sometimes oftener. The washing should be carried out in boiling water, care being used that no steam comes in contact with the cloth. Some soak the blankets over the week-end to keep them pliable and others wet-out about a yard of the blanket for a period of an hour upon starting after the week-end.

Mill men are advised in replacing one roll to replace both, because the rolls are so constructed that after running for a number of years there will be a sag between the ends and the center brace. If the diameters of the size rolls are not exactly the same, the yarn will be stretched.

SPEED OF SLASHERS

Slasher-speed depends on the number of the yarn, the number of ends, the temperature of the drying cylinders, and the percentage of size and moisture in the sized yarn. In general, the lower the number of ends, the faster may the slasher be run. It is claimed that with complete temperature controls—i.e., on cooking and storage kettles, size-box, and cylinders—more uniform size take-up and moisture content, and greater speed at the slasher are possible. Much greater speed is also obtained on slashers provided with a new stretch-control mechanism, as explained later. The following table (gathered from reports of discussions at meetings of mill-men and other sources) arranged according to the number of ends, shows the speed of the slasher, numbers of the yarns, temperatures of the cylinders, percentages of size and moisture on the yarn, and whether or not temperature controls were used.

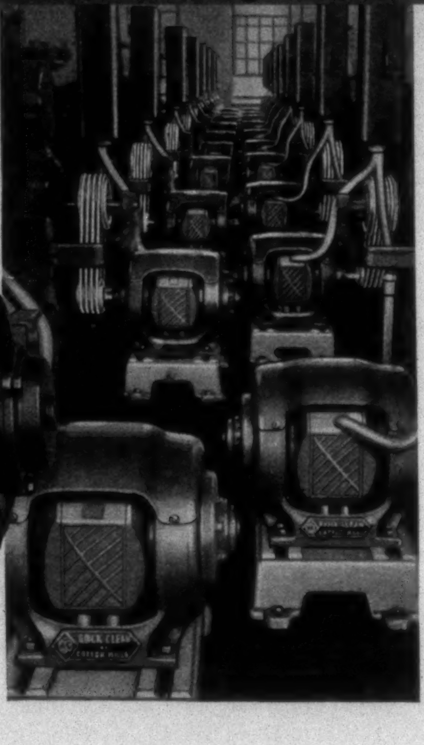
No. of Ends	Speed of Slashers, Yds./Min.	No. of Yarn	Temp. of Cylinders, °F.		Moisture %	Size %	Temp. Controls
			Large	Small			
483	65	30s	—	—	—	—	Everything but cylinders
1600	40	26s	—	—	—	—	—
1980	60	30s	—	—	—	—	Everything but cylinders
2170	65	55s	—	—	—	—	Complete controls
2480	33	30s	232	240	8½	13½	Complete controls
2500	35	25s	—	—	—	—	Everything but cylinders
2626	30	24s	—	—	—	—	Everything but cylinders
3000	35	22s	—	—	—	—	—
3120	45	30s	230	240	8–8½	8	—
3186	35	30s	—	—	—	—	Everything but cylinders
3200	35	30s	—	—	—	—	Everything but cylinders
3700	30	30s	—	—	—	—	No controls
3900	28	24½s	224	234	—	—	Complete controls
4100	47	30s	230	240	8–8½	10–11	—
5740	17	21s	242	252	6	8	Complete controls

STICKING OF YARN TO CYLINDERS

Causes.—The sticking of yarn to the cylinders on slashers may be caused by anyone of several conditions

(*Continued on Page 8*)

RIGHT DOWN YOUR ALLEY!



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Notes On Cotton Warp Sizing

(*Continued from Page 6*)

and is experienced more generally by mills using thick-boiling starch or a very heavy or concentrated thin-boiling starch mixture. Sticking may be caused by the poor condition of the blankets on the squeeze rolls, or the squeeze rolls may not be heavy enough to squeeze out the excess size, especially if the set being run is a heavy one. Sticking may also occur if there is an insufficient amount of softener used. Other causes may be (a) insufficient cooking of the size, (b) too low a temperature (under 200° F.) in the size box, (c) immature cotton, (d) bumps on the face of the cylinders, and (e) dirty or gummy cylinders.

It was also found that condensation in the cylinders may be the cause of the sticking. When condensation occurs the cylinders are not hot enough to dry the yarn properly leaving wet starch on the cylinders. The wet starch ultimately dries and may be the cause of binding the warp to the cylinder.

Remedies.—To overcome sticking to the cylinders, it has been suggeste dto make sure that the squeeze rolls are heavy enough an dthe blankets in good condition. It is also recommended that at least 8 pounds of tallow-fat be used per 100 pounds of starch. It will also be advisable to see that the slasher-cylinder is thoroughly cleaned by brushing with soap and water. A pint of turpentine or kerosene stirred in with the size-mix after the cooking is completed and before the size is turned into the size box, will usually clean off cylinders and stop the sticking. The temperature of the cylinders should be regulated to take care of the complete drying of the warps. The first cylinder should preferably have less heat than the following one. This is to avoid baking, blistering or burning of the yarn which may take place when it comes in contact with an overheated surface. Gradual drying is most essential and will give the best results.

DRYING OF WARPS

Drying at a high temperature lowers the hygroscopic capacities of both cotton and starch. It is stated that drying at the temperature of boiling water decreases the strength of unsized yarn about 2 per cent. It is presumed, although not fully established by test at the time of writing, that over-drying will aggravate the brittleness of sized yarns. It is a well-known fact that the size-film of a warp dried to a state where there is a deficiency of moisture, has lost the greater part of its elasticity, with the result that in weaving not only will its weakness cause excessive breakage, but there will be a good deal of shedding. Excessive baking will usually cause scales like small dandruff to drop on the floor of the weave room, as well as considerable shedding of small fibers. A practice that causes trouble is the occasional stoppage of the slasher, for one reason or another, with the result that 20 to 40 yards of warp become dried to an extent where the weaving properties of the yarn are greatly damaged.

MOISTURE-REGAIN

Effect on Tensile Strength.—High humidity causes swelling and consequent better gripping of the cotton fibers, hence stronger yarn. The greatest strength of sized yarn, however, is reached at about 70 or 80 per cent relative humidity. Above that, it falls off on account of loss of strength of the softened starch. Size causes better gripping by its cementing action and makes the yarn stronger under ordinary conditions. As the size softens at high humidities its effect is lost and yarn has the same strength at saturation whether sized or unsized. Sizing decreases the extensibility under dry conditions but it is rapidly regained with increasing humidity. At saturation it approximately equals that of the unsized yarn. Since sized cotton yarns are more extensible at higher humidities than at lower humidities, weaving sheds in which heavily sized goods are made are usually kept very humid.

Rate of Regain.—Ordinary cotton yarns are stated to come to equilibrium following a change of atmosphere in about 30 minutes, most of the effect taking place in the first few minutes. The presence of size decreases this rate of change by about a third. Tire cord requires about 15 hours to come to equilibrium in a moist atmosphere; cotton fabrics of average weight, about 3 hours. Loose fibers with an almost perfect exposure to the air will change their regains very quickly. Raw stock in bulk will take a longer time to condition through and through, because a great deal of the air at the new relative humidity must penetrate and diffuse through the mass before the necessary amount of water can be brought to the cotton or carried away from it. Obviously, for conditioning textile materials it is best to have the air in motion; but whether moving or not, if it is of constant humidity, the material will come to equilibrium and stay there.

Absorption of moisture by cotton proceeds very quickly according to the water-vapor pressure, because fiber-colloids tend to take up particles of water very avidly. On the other hand, they give up water more slowly, for even at a low vapor pressure in the room as compared with the tension of the water retained by the fiber, the latter has the tendency (owing to its colloidal nature) to retain the particles of water as firmly as possible.

Moisture Regain of Cotton Yarns and Cloths.—A careful survey among a number of mills has shown that the average moisture regain of finished yarn in mills where humidifiers were running was 6.95% and in mills where humidifiers were not in operation in the finishing department, 4.44%. The average regain of finished cloth in mills where humidifiers were running the cloth-room was 7.58% and where humidifiers were not running, 5.67%. The average regain in the finished cloth ready for shipment was 6.6%. The moisture regain of cotton at different relative humidities is reported to be as follows:

Relative Humidity %	*Moisture Regain* %
60	7.5
70	8.8
95	18.0
100	33.0

Standard Atmosphere.—The standard atmosphere for conditioning cotton for tests is a relative humidity of 65 per cent, with a tolerance of plus or minus 1%, and a temperature of 70° F., with a tolerance of plus 10° F. Tests on cotton have shown that a rise in temperature of

10° F. has approximately the same effect as a drop of 1% in relative humidity.

Moisture in Warps.—One mill recommends for good weaving on coarse warps under 20s, a moisture content of 7 to 8%. Other moisture figures mentioned are 6½ to 7½% on 30s yarn, 1980 ends; and 6 to 7% on 8-ounce ticking.

SHEDDING

There may be other local conditions that cause shedding, but in general it is due to improperly or insufficiently cooked starch, too viscous or heavy size, too low a temperature in the size-box, or excess of fatty matter in the size. If shedding is being experienced and the starch is being thoroughly boiled, it is advisable to determine whether or not the size is sufficiently thin to permit proper penetration of the yarn. If not, a thinner starch should be used. Proper penetration of the yarn is sometimes prevented by too low a temperature of the size in the size-box, causing thickening or increased viscosity of the starch. This condition can, of course, be rectified by arranging for better heating and for sizing at a higher temperature. Excess tallow often causes shedding as it has a tendency to reduce the adhesiveness of the starch to the warp.

STRETCH OF YARN

In the case of cotton, surprising results have been achieved by uniformly controlling stretch at approximately 1 per cent. The natural gray yarn has a stretch of only 6 per cent to 7 per cent at the breaking load and some cotton slashers in operation today actually take out as much as 3 per cent stretch, or approximately one-half. This is sufficient to seriously weaken the yarn, particularly where the maximum stretching occurs at places that are already thin as the yarn enters the slasher. In many cases, slasher speeds have been limited by the factor of excessive or irregular stretching. Warps were made with zero stretch, but under this condition the yarn comes off the slasher slack and it is impossible to attain high speeds due to the poor splitting at the lease bars. However, it was found that there is practically no difference in loom efficiencies between warps having zero stretch and 1 per cent, but beyond 1 per cent the efficiencies drop very quickly.

One mill reports that yardage-counters installed on the front and back of the slasher provide a simple means of determining the amount of stretch in the yarn during slashing. It was found by one mill that approximately 1 per cent stretch occurred between the squeeze roll and the pulling roll on the front of the slasher. Another mill had installed yardage-counters driven by surface contact on the beams, both front and back, and found a total stretch of 1.85 to 2%; this method showed more stretch than when measured from the delivery roll. In a discussion on stretch of yarns during slashing, one mill reported practically no tension on the slashers. Other mills reported as follows; on 30s yarn, 0.94 to 1.5%; on 12s to 17s yarn, 1.25%; on 26s yarn, 1692 ends, 0.1 to 0.6%; and on 12s yarn, 0.4 to 1.3%.

Stretch-Control Device.—There has recently been put on the market a device for controlling the stretch of yarn on the slasher. It is claimed that with this device the speed of delivery may be more than doubled, with even better slashing and weaving efficiencies than at the slower speeds with no controls. The speed of the slasher with this system seems to be limited by the drying capacity of the cylinders. It is also claimed for the stretch-control device that besides greater production, it produces warp and loom beams of unusual uniformity with respect to strength and elasticity, due to the even application of the size and to holding the stretch of the yarn at a uniform and predetermined minimum. To obtain the full

(*Continued on Page 22*)

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Carries the Weight into the Fabric

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THE KEEVER STARCH CO., COLUMBUS, OHIO

Interesting Developments in Cotton Fabrics

Illustrating Use of 100-Inch Striped Homespun

100-inch Drapery Material

THE experiment with 100-inch drapery material has been a great success. The daily striped homespun material which was made in this unusual width—bright greens, blues, reds, yellows on a natural and tan ground—has been bought up rapidly by enthusiastic women who have inquired if other materials did not come in the same width. For twin bedspreads it merely has to be hemmed top and bottom—no center seam. It can be used for draw curtains at the windows in a single piece. For fall draperies in the deeper, darker fabrics, this 100-inch innovation should prove a big seller.

Fall Print Cloths

Print cloths for early fall are gay in color and design. The general trend is toward chalis patterns, small tweed checks and very bold plaid effects. To illustrate, Swatch No. 1 is a chalis design imported from Europe, a black ground with white circles around flowers of gray, yellow, red and green, the flowers also outlined in white. Other backgrounds are china blue, dark brown, navy and bright red. Swatch No. 2 is a small check in dark and light blue on white. Swatch No. 3 is a bold paid in burgundy red, soft, dull blue and medium green on white. Another combination which is very good is green, gold and black on white. A popular color in these prints is carrot—exactly the same shade as the vegetable.

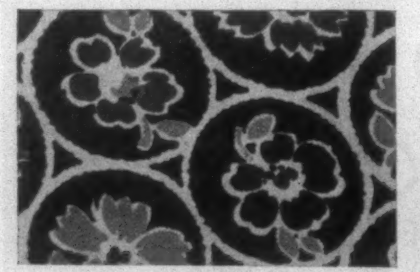
Feather Motif

The feather motif which was introduced this summer in glazed chintzes and osnaburgs for curtains and slip covers has been very well received, and its popularity should be even greater in the coming fall and winter season. Feathers have been combined with leaves in scroll designs, and alone they have trailed gracefully over blue, brown and dubonnet backgrounds. So far they have appeared only in the more expensive fabrics, but the idea is so radically different from anything of the last few years that the trend will undoubtedly reach the cheaper grades before long.

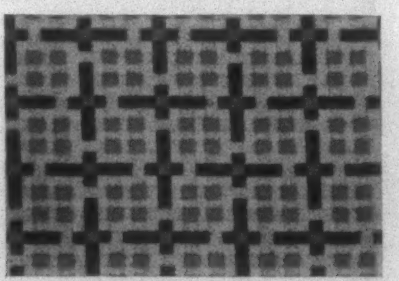
Wool Effects

The first of the chalis texture materials for fall, of rayon and cotton, show small designs, widely spaced on dark backgrounds. They have the soft appearance and texture of wool—they look like a fine wool. Swatch No.

(*Continued on Page 34*)



Swatch One



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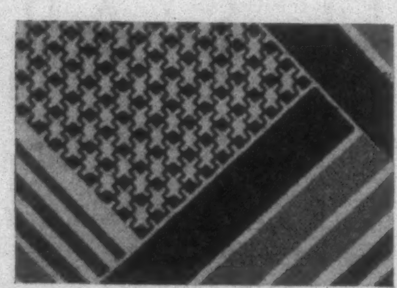

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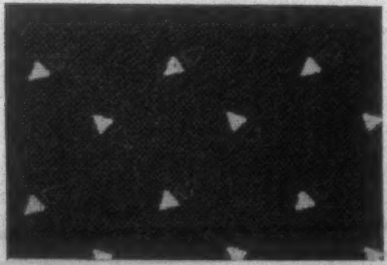

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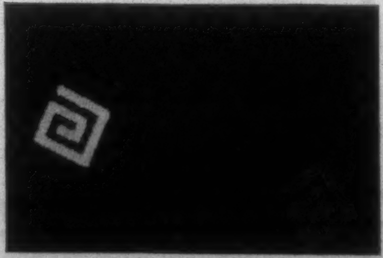

Swatch Five

North Carolina is Leading Textile State

A survey of basic industrial markets just completed by the Bureau of Foreign and Domestic Commerce at Washington shows North Carolina leads all States in cotton manufacturing and that South Carolina is second.

North Carolina has a total of 481 combined textile establishments, with 126,892 wage earners paid $69,740,000 annually, and the total value of finished products, $421,926,000, the report stated.

The number of cotton textile mills is 289, wage earners, 87,709; annual payrolls, $45,295,000; total value of products, $272,026,000.

South Carolina has a total of 155 textile establishments, of which 145 are cotton mills. The total number of textile employees of all classes is 76,220 with an annual payroll of $39,479,000, and the total value of the finished products, $240,074,000.

The report shows that of the 1,057 cotton textile mills in the United States, 287 are located in North Carolina, 145 in South Carolina, 125 in Georgia and 103 in Massachusetts, with wage earners as follows: North Carolina, 87,709; South Carolina, 74,594; Georgia, 57,238; and Massachusetts, 45,418. Wages paid per annum are: North Carolina, $45,295,000; South Carolina, $38,660,000; Georgia, $29,139,000; and Massachusetts, $31,310,000.

It is shown that 379,445 wage earners are engaged in the cotton textile industry, having an annual payroll of $216,345,000 with the cost of materials, fuel and power, by a survey completed last year, shown as $476,769,000 with value of products, $861,170,000. North Carolina leads all of the 23 cotton textile manufacturing States in cost of materials with the statement that last year such cost manufacturers of North Carolina $107,476,000 while that paid out in South Carolina was $90,328,000; Georgia, $76,207,000, and Massachusetts, $51,189,000.

The total value of products of North Carolina mills was $189,759,000; South Carolina, $162,411,000; Georgia, $126,302,000; while in Massachusetts, the fourth ranking State, the value of products was $98,603,000. After these products had been manufactured the added value for each of the four States was: North Carolina, $82,275,000; South Carolina, $72,083,000; Georgia, $50,094,000; Massachusetts, $47,414,000. The total number of cards in the United States last year was 73,604,000 with 17,451,000 in North Carolina, 11,743,000 in South Carolina, 10,314,000 in Georgia, and 8,336,000 in Massachusetts.

Of the 625,118 looms in all the mills of the country last year, 135,169 were in Massachusetts, 85,299 in North Carolina, 132,121 in South Carolina, and 64,368 in Georgia.

Of the total of 32,043,318 spindles in the United States, North Carolina had 6,898,645; South Carolina, 5,723,833; Massachusetts, 5,916,752; and Georgia, 3,759,338. The survey shows that 105,553 is the total number of braiders in the country, of which 1,347 are in North Carolina, four in South Carolina, 12 in Georgia, 14,850 in Connecticut, 42,287 in Rhode Island, this State leading the country. In regard to totals spindleage the report shows that Massachusetts has 18.5 per cent, South Carolina, 17.9 per cent, Georgia, 11.7 per cent, with North Carolina leading all States with 21.5 per cent.

The survey shows the geographical location of the combined major textile manufacturing industries. Thirty-two States have some textile manufacturing, but the great bulk of the industry is located along the Atlantic seaboard, where 12 States have 92 per cent of the spindleage of the industry. These 12 States form two distinct areas of great density. The eight States of the northeastern group, Maine, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, and New Jersey have 48 per cent of the combined industry, while the southeastern group, composed of North Carolina, South Carolina, Georgia and Alabama, contains 44 per cent.

That the combined textile manufacturing industry of the Carolinas is diversified is shown by the fact that North Carolina also has 156 knitting mills, employing 28,596 wage earners, with an annual payroll of $17,607,000; cost of materials, fuel and power, $30,776,000; value of products, $64,092,000, and an added value of $33,316,000 by manufacture. The State has six braiders, 4,318 knitters, loopers and ribbers and 3,865 sewing machines.

Rayon Plants

In the rayon and silk industry, North Carolina has 29 establishments with 9,284 wage earners who receive $6,024,000 annually. Cost of materials, fuel and power for the rayon and silk mills is $18,058,000 with value of products $31,289,000 with an added value of $13,231,000 after manufacture. The number of looms is 9,483, spindles, 108,862. In the woolen worsted line the State has seven establishments, employing 1,303 wage earners who are paid annually, $814,000. The cost of materials, fuel and power is $2,510,000; value of products, $5,241,000; value added by manufacture, $2,731,000; with equipment cards, 89; number of looms, 83; spindles, 9,660. Taken as a whole the total number of textile establishments in North Carolina is 481; wage earners, 126,892; annual wages, $69,740,000; cost of materials, fuel and power, $158,820,000; value of products, $290,373,000; value added by manufacture, $131,533,000; number of cards, 17,540; number of looms, 95,265; number of spindles, 7,017,167; number of braiders, 1,353; knitters, loopers and ribbers, 40,318; sewing machines, 3,865.

The report shows that South Carolina has not ventured far afield in the textile industry except in the cotton since it has only four rayon and silk establishments and six knitting mills. A summary of the combined manufacturing textile industry in South Carolina consists of 155 establishments, employing 76,220 wage earners, with an annual payroll of $39,476,000. The cost of materials, fuel and power is $94,470,000; value of products, $166,274,000; value added by manufacture, $76,806,000; number of cards, 11,743; looms, 137,638; spindles, 5,759,961; braiders, 104; knitters, loopers and ribbers, 2,226; sewing machines, 60.

A factor that enters into the survey is elimination from consideration of the dyeing and finishing department of the number of mills, which are accessory plants to textile establishments, even though in some cases such a department more than double the size of the owner mill. The second factor is non-inclusion of independent bleaching, dyeing, printing and finishing companies.

Dyeing Synthetic Fabrics*

By Hector C. Borghetty

IN recent years we have witnessed the steady and increasingly successful adoption of fabrics made with synthetic fibers. Parallel to this the necessity has arisen to process these fabrics by means which would permit the economical handling of the large and increasing volume of business. The variety of synthetic fabrics made nowadays is such that it is advisable this evening to limit the field to one of the main groups.

Let us consider cloths of flat construction, namely, taffetas, twills, lining cloths, satins and similar, both of rayon and acetate rayon. Let us also take occasion to consider the possibilities of processing these fabrics by continuous methods and see how present equipment and means of prepare fit in with this type of processing.

In the matter of continuity, present-day methods of rayon processing leave much to be desired. In fact, there is a constant endeavor to accelerate the speed of operations throughout the plant where frequently the drawback of the lack of continuity is felt. The existing methods of continuous prepare, which are those used for cotton, cannot be generally considered as suitable for the delicate rayon fiber. This fiber would be damaged were it subjected to drastic chemical treatments in rope form. Nor, furthermore, would such treatments be necessary, because as we are well aware, rayon fabrics do not contain the impurities of cotton gray cloths. The impurities present in rayon gray goods are merely those which have been added to facilitate weaving operations.

To process rayon fabrics in a continuous way, it therefore, is necessary to use scouring solutions capable of eliminating the sizing ingredients without damaging the fiber and this must be accomplished with machinery which will not subject the fabrics to fraying or creasing. In other words, it will be advisable to make use of open width machines, namely, open width soapers, padders, jigs, vacuum extractors, etc. In connection with the impurities present in synthetic yarn gray goods it has always been the earnest wish of the finishing plant personnel to be informed by the gray mill just what type of sizing ingredients have been used. It has always been hoped that these ingredients be readily removable. Both this wish and this hope are very often disappointed. To many it has never been quite clear why some gray mills persist in adding all kinds of insoluble unknowns without paying the least attention to the fact that the finisher is placed in the position of removing them without destroying the cloth. In view of the fact that this condition exists it must be countered by analysis of the ingredients present in the cloth of the various gray mills and by conforming scouring operations so as to take care of the type of sizing present, as efficiently as possible. Of course, in the average finishing plant one becomes accustomed to the fact that certain gray mills generally use certain compounds.

Tests conducted on gray goods from various mills generally reveal that the sizing used is either a gelatin or starch base. Thus, steeping of the gray goods in a solution of an enzyme capable of digesting these products will be our first operation in the majority of cases.

When the goods contain starch sizing a diastatic enzyme is necessary. In case of gelatin or casein sizing it will be found strongly advisable, particularly in case of acetate fabrics, to use a protease. There are on the market enzymes which answer these respective uses satisfactorily. They are all buffered to the proper hydrogenion concentration so as to function under the best conditions. There are some enzymes which contain both diastatic and proteolytic components and can therefore be used for solubilizing both starches and gelatin sizes. In some instances it will be found possible to omit the preliminary steeping entirely—such would be the case when sizing ingredients of the dextrine type have been used. These are soluble without a preliminary malting action.

There still persists the fallacy of using mineral acids as desizing agents. These are out of the question because the acid will weaken the filling threads before it has a chance to solubilize the size in the warp threads.

The operation of malting is carried out either on the jig (for small runs) or on the pad. The correct concentration, generally between 1-6 per cent of enzyme must be used at its optimum temperature. Once impregnated, the cloth must be allowed to stand batched up for at least 2 hours, although a longer period is better.

A thorough impregnation is essential and care should be taken that the roll contains an excess of liquid so as to allow the sizing ingredients to swell and then be acted upon by the solubilizing enzyme. Good impregnation is generally easy to obtain on the jig where it is always possible to give an extra end. On the pad, however, it often happens that the amount of desizing solution present in the cloth is insufficient to perform its function. Better impregnation is assured by using an impregnating machine instead of a pad, thus giving several dips through the solution before squeezing out the excess. Soft squeeze rolls will also be found advisable as they permit a longer contact. Precautionary measures to observe are: 1. Cover the sides and ends of the padded rolls with a cloth dampened with the solution of enzyme—otherwise these parts will dry out quickly and the enzyme becomes inactive. This precaution eliminates one of the causes of side shaded dyeings. 2. Change the position of the roll frequently to avoid accumulation of liquid on the lower part of the roll which would cause loss of solution.

Once solubilized, the sizing ingredients can be readily removed by scouring. Scouring may be accomplished either on the jig or in a continuous manner.

The jib is used for acetate fabrics and all others that have a tendency to wrinkle. For a jig scouring usually 6-8 ends at 180-200 degrees F. in the presence of about 1-2 per cent soap solution and final rinsing is sufficient.

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*Paper before Rhode Island Section, American Association of Textile Chemists and Colorists.

For acetate fabrics (mixtures of acetate and rayon are usually processed as acetate) the temperature should not be maintained much above 180 degrees F. else a partial saponification takes place which causes a great deal of inconvenience in subsequent dyeing. Saponification of acetate fabrics takes place much more readily if alkalies are present and particularly if the pH value is above 10.

This fact leads many to atempt scouring in a neutral bath such as is obtained by the use of sulfonated alcohols and similar scouring agents. Practical trials, however, show that in scouring woods containing digested gelatin sizes, a more efficacious scouring action is had at pH 8-9 than at the neutral point.

There are cases, and unfortunately very many, in which the scouring becomes far more complicated and expensive than a mere washing for an hour or so. This is in reference to sightening colors of the wrong type being used in the gray goods. In many instances, not only is the warp intensely colored, but the entire goods are "plastered" with signs and impressions (night and day stampings, change of size, experiment marks, etc.) For the removal of such products it often becomes necessary to use a stripping agent as a supplementary operation after the scouring. Hydrosulfite and caustic are generally the most efficacious.

For continuous scouring the present-day open width soaping machine is used. This machine consists of a series of compartments containing scouring liquors and rinse waters. One of the essential points is that the machine be equipped with feed-tanks in which the scouring solutions are made up and controlled.

Although the time factor is short compared to that on the jig, it can be somewhat compensated for by using stronger solutions at higher temperatures. The final rinse can be given with hot water. Caustic is sometimes used in one of the compartments and its swelling action on the fiber appears to help level the dyeing properties.

Drying after preparing seems also to assist in obtaining more level dyeing. One must not expect to eliminate the well-known inconvenience of streaky dyeing by merely giving a caustic treatment to the fabric and a drying on cans. The subject of dyeing streaky rayon is not on discussion tonight and it involves the characteristics of the dyestuff, its rate of aggregation, absorption and diffusion, etc. Nevertheless, in preparing fabrics it is only fair to eliminate unevenness in warp sizing, when possible, so as to send on to the dyehouse scoured goods which have an even chance of dyeing up satisfactorily.

For the bleaching of rayon fabrics there are two main bleaching agents—chlorine and peroxide. Chlorine, although more economical, does not possess the flexibility of peroxide bleaching methods. It is furthermore not suitable for acetate bleaching as it tends to impart a rather disagreeable odor to the fiber. Chlorine is generally applied in a similar manner as used for cotton, by impregnating the fabric with a solution of a hypochlorite at about 1-2-1 degree Tw., allowing to stand for a few hours, then giving antichlor.

Peroxide bleaching, although it gives at times a somewhat harsher and duller fabric has the decided advantage of producing a better and more endurable white. Its main advantage consists in the speed of operation and in the

(*Continued on Page 23*)

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ANNOUNCES---

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Personal News

N. H. Welch has resigned as superintendent of Florence Mills, Forest City, N. C.

Alva Norris has been promoted to shift foreman spooling and warping at the Bibb Manufacturing Company, Columbus, Ga.

L. M. Thompson, who has been overseer spooling and warping at the Bibb Manuacturing Company, Columbus, Ga., has been promoted to office manager.

Frank Hackett has been promoted from the Payne Plant of Bibb Manufacturing Company to a position in the cotton department at the Columbus Plant.

J. H. Jolly has been promoted to overseer spinning, spooling and finishing at the Bibb Manufacturing Company, Macon, Ga.

Joe Pittman has been promoted to overseer of knitting at the Bibb Manufacturing Company, Macon, Ga.

Wm. C. Calhoun has been promoted to shift foreman at Bibb Manufacturing Company No. 2, Macon, Ga.

T. W. Price, formerly general manager of the Etowah Manufacturing Company, Canton, Ga., has accepted a similar position with the Barrow Manufacturing Company, Winder, Ga.

H. M. Belk is not master mechanic at the American Spinning Company, Greenville, S. C., as reported through error in the issue of June 25th. M. C. Kirkpatrick is master mechanic at the American Spinning Company, a position which he has satisfactorily filled for the past three years.

Fred L. Smyre, Jr., of Gastonia, N. C., who recently completed a course in business administration at Harvard University, where he went following his graduation from Davidson College at Davidson, N. C., has gone to Concord, N. C., where he has joined the Locke Cotton Mills. He is the son of Fred L. Smyre, Sr., president and treasurer of the A. M. Smyre Manufacturing Company at Ranlo, N. C.

At a meeting of the board of directors of John P. Maguire & Co., Stanley Klein was elected vice-president of the company.

For several years Mr. Klein has been associated with Amos Parrish & Co., a merchandising and consulting agency, serving both manufacturers and large retailers. Mr. Klein directed the activities of the manufacturing division of the company's business and brings to John P. Maguire & Co. an intimate knowledge of the selling problems of manufacturers. His experience and understanding of this important function of present-day distribution should be an added element of strength to the Maguire organization and an added element of value to its customers.

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QUALITY SERVICE

Herbert Booth of Birmingham has been added to the Southern sales force of the Emmons Loom Harness Company of Lawrence, Mass. Mr. Booth will cover the States of Alabama, Georgia, Louisiana, Mississippi and Oklahoma, with the complete Emmons line consisting of cotton and mail-eye harness; flat steel heddles; metal and pitchband reeds; Wardwell loop and doll pickers.

H. V. Long of Charlotte has been awarded a patent on apparatus or applying a treating fluid to yarn packages. The packages are moved through a casing and atomized fluid is projected onto all portions of the packages. This is effected by the conveyor being perforated and there being atomizers disposed above and below the conveyor, according to Paul B. Eaton, patent attorney.

M. A. Bearden Active Vice-President Pomona Mfg. Co.

At a recent meeting of the directors, M. A. Bearden was unanimously elected active vice-president and general manager of Pomona Manufacturing Company to succeed F. Gordon Cobb, who had resigned after more than a year's successful service.

Mr. Bearden and his family have lived in Greensboro since February, 1935, when he became office manager at Pomona. Prior to that time he had been assistant superintendent of Manville-Jenckes Corporation. His former mill experience included several years at Oconee Textiles, Inc., Westminster, S. C., and later secretary-treasurer of Victory Manufacturing Company, Fayetteville, N. C.

The following trained mill men were selected by the board and Mr. Bearden as his associates in the operation of Pomona Manufacturing Company:

W. L. Clement, Jr., general superintendent and assistant manager; John L. Scott, purchasing agent and manager of yarn sales; R. A. Whatley, plant superintendent; and G. W. Dobbins, assistant superintendent. Messrs. Clement, Scott and Dobbins have been with Pomona for years and are well known citizens of Greensboro. Mr. Whatley was for years general manager of Carl Stohn, Inc., of Charlotte, and is recognized as an expert in the designing and manufacture of novelty fabrics, many of which are now being made at Pomona.

These announcements were made by I. F. Craven, vice-president, representing the directors of Pomona Manufacturing Company.

Mr. Craven is also president and treasurer of Columbia Manufacturing Company, Ramseur, N. C., a cotton textile plant with which he has been in continuous service for more than forty years.

British Mills Humming

More good news for the Southern cotton grower is contained in reports showing an unusually high rate of cotton manufacturing in Great Britain, with notable increases in the amount of raw cotton consumed.

During the ten months of the current season thus far, Great Britain's mills have used more cotton than in the corresponding period of any previous season since 1928-29, according to the New York Cotton Exchange Service, which regards this development as one of the "brightest phases of the world cotton spinning industry." British consumption of cotton of all growths during the period was 2,338,000 bales.

The most remarkable thing about this increasing British consumption of cotton is the fact that it has not been because of increased exports of cotton goods, since it is shown that exports have not increased in such a proportion. Great Britain, it appears, has greatly developed its domestic market for cotton manufacturers and that domestic market has to a large degree replaced its exports trade.

The British spinners are using a greater proportion of American cotton this year than last season, it is likewise indicated and England is thus resuming her position as one of the most important foreign customers of American cotton, while there has been some tendency toward reduction in the proportion of American cotton used in Oriental countries.—*Greenville Daily News.*

Wharton School To Conduct Textile Organization Study

The Wharton School of the University of Pennsylvania has been appointed as the research agency to conduct the study of "Production and Distribution Organization in the Textile Industry," the financing of which was recently authorized by The Textile Foundation. The investigation will be carried on under the advisory supervision of the Committee on Economic Research of the U. S. Institute for Textile Research and an auxiliary committee composed of presidents of several of the major textile associations.

The Industrial Research Department of the Wharton School has had close contacts with the textile industry for a long period of years, through its work in the wool and hosiery divisions particularly—and more recently in connection with the program of textile education. Joseph H. Willits, dean of the Wharton School, will be in general charge of the study and will be assisted by the following members of the Industrial Research Department: C. Camby Balderston, professor of industrial management; Anne Bezanson, co-director of the department; H. S. Davis, in charge of the wool section; and George W. Taylor, in charge of the hosiery section. Mr. Davis will serve as secretary of the group. Other members of the department and of the school will be called upon to participate in particular phases of the study.

As announced at the time the authorization of this study was made known by The Textile Foundation, it will involve particularly investigation into the factors affecting the success or failure of various types of organization which have undertaken, at any important point, to bridge the gap between mill and consumer. Its purpose is to serve as a guide to individual manufacturers in their own determination of future policies. Factors influencing periodical variation in production will also be given consideration as part of this study.

The members of the Committee on Economic Research which recommended the study and will act as the sponsoring committee include: Fessenden S. Blanchard, Pacific Mills, chairman; Paul T. Cherington of Cherington, Rope & Wood; Stanley B. Hunt, Textile Economics Bureau; H. V. R. Scheel, textile consultant; W. Homer Turner, Marshall Field & Co.; Douglas G. Woolf, editor of *Textile World;* A. W. Zelomek, International Statistical Bureau.

The advisory group representing textile associations, who have joined with the above committee in recommending the study and in approving of the appointment of the Wharton School to conduct it, includes W. Ray Bell, president, Association of Cotton Textile Merchants of New York; Arthur Besse, president, National Association of Wool Manufacturers; A. W. McCready, representing National Federation of Textiles, Inc.; Dr. C. T. Murchison, president, Cotton-Textile Institute.

Other executives of leading textile associations who have expressed interest in this study and a willingness to co-operate are: A. F. Allison, secretary of the International Association of Garment Manufacturers; Roy A. Cheney, managing director of the Underwear Institute; Earl Constantine, managing director of the National Association of Hosiery Manufacturers; Charles Whitney Dall, president of the National Rayon Weavers' Association; and W. P. Fickett, president of the Textile Fabrics Association.

The Textile Foundation is organized for scientific and economic research for the benefit and development of the textile industry, its allied branches, and including that of production of raw materials.

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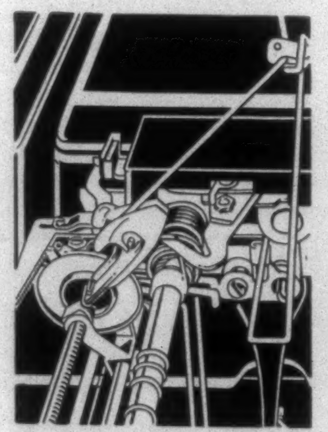

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Co-Ordination of Boiler Auxiliaries[*]

By A. F. Spitzglass and G. K. O,Connor

Republic Flow Meters Company

THE two most important characteristics of boiler auxiliaries in regard to their effect on the control situation are range and flexibility, for they must have sufficient range to cover the entire requirements of boiler ratings. Questions of range and flexibility are more frequently encountered in industrial boiler plants than in central stations because of the character of the load and the small number of boilers in operation.

Boilers in base-load stations are often considered as base-load boilers. From the control standpoint, however, there is a difference between boilers operated at base load and those operated in a base-load plant. In base-load plants the steam pressure must be controlled to take care of minor load changes and variations in heat input caused by variations in fuel and air supply.

CONTROLLED VARIABLES

A combustion control system regulates three variables, steam pressure, combustion and furnace draft. Steam pressure is controlled by changing the heat input to the boiler to balance the steam demand. In gas, oil and pulverized coal-fired boilers, where fuel is burned in suspension heat input responds to the rate of fuel supply to the furnace. In these boilers steam pressure is controlled by changing the fuel supply. In stoker-fired boilers the immediate heat input responds to the air flow through the fuel bed. Here steam pressure is controlled by changing the air flow.

Combustion is controlled by changing either the fuel or air to maintain the desired fuel-air ratio. In gas, oil and pulverized coal-fired boilers, since the steam pressure is controlled by changing the fuel supply, the fuel-air ratio must be controlled by changing the air flow. The fuel-air ratio of these boilers can be accurately controlled only if the range and flexibility of the draft equipment match the range and flexibility of the fuel supply. In stoker-fired boilers, since the steam pressure is controlled by changing the air flow, the fuel-air ratio must be controlled by changing the stoker speed.

Furnace draft is controlled by maintaining a balance between the forced and the induced draft. If, for example, the air flow through a boiler is changed by means of a change in induced draft, the forced draft must be instantly changed a corresponding amount to maintain the furnace draft.

PULVERIZED COAL-FIRED BOILERS

With pulverized coal-fired boilers heat input is controlled by changing the fuel supply to the burners. Hence, any lack of range or flexibility impairs the regulation of steam pressure. With the storage or bin system there is seldom any problem of flexibility, since fuel supply responds immediately to change in feeder speed. However, to cover the range of boiler ratings, manual operation of burners is sometimes necessary.

With the direct-firing system control of fuel input is more difficult. Because of the storage lag of the pulverizer the change in fuel input to the furnace does not rapidly respond to change in raw coal feed to the mill. The effects of pulverizer lag may be overcome by primary air control, by mill-speed control or by overfeeding on load pickup and underfeeding on load drop. One method of primary air control which has given excellent results in a number of installations is shown in Fig. 1. With this method the measured quantities of primary air and fuel feed are controlled with separate master-controlled regulators.

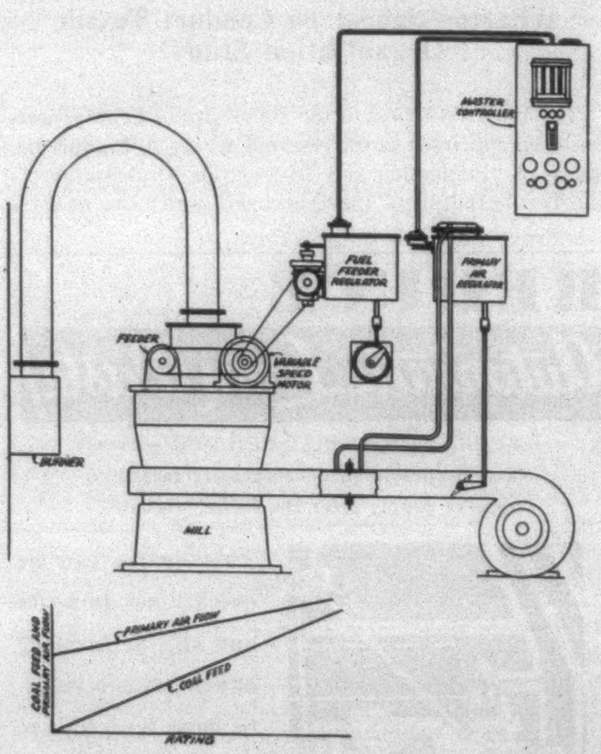

Figure 1

In addition to permitting accurate control of steam pressure and combustion this method also has the advantage of improving ignition at low boiler ratings by increasing the fuel finess and reducing burner velocities. Measured control of primary air prevents mill plugging since an increase in coal storage in the mill produces an increased air velocity within it. This increased velocity causes an increase in the rate of coal removal from the mill and thus limits the coal storage.

---

[*] From a paper at the Midwest Power Conference, Chicago, April 20 to 23, 1936.

One requirement of primary air control is that the primary air blower furnish sufficient pressure not only to overcome resistance of the pulverizer, burner and piping but also to provide an extra margin for control.

STOKER-FIRED BOILERS

As a rule, few problems are encountered in controlling fuel input to stoker-fired boilers. The fuel input is controlled by changing the stoker speed. The speed range of the drive and the gear ratio between the drive and the stoker should be able to satisfy the range of boiler ratings without resort to manual gear change. Underfeed stokers require an extra margin of speed range to take care of varying feed characteristics of the fuel. Speed control is usually satisfactory if the stoker is driven by an engine turbine or constant-speed motor with variable-speed transmission. Field-controlled dc motors should have a sufficient number of rheostat points to provide incremental speed steps. With three and four-speed motor drives the proper fuel bed thickness may be obtained by means of "totalized" regulation. However, when this type of drive is used the proper change in fuel bed agitation with small load changes is not obtained.

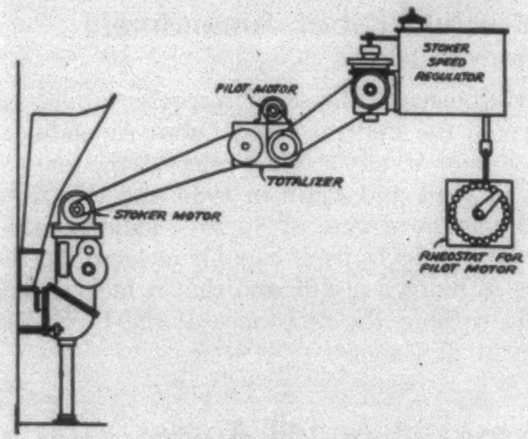

Figure 2

Fig. 2 shows diagrammatically the method of controlling the speed of a pole-changing stoker motor by means of "totalized" regulation. One shaft of the "totalizer" is driven by the stoker motor while the other is driven by a variable-speed pilot motor. The stoker-speed regulator controls the speed of the pilot motor and together with the master controller and air-flow regulator maintains the speed of the pilot motor in proportion with the boiler air flow. The "totalizer" compares the totalized revolutions of the stoker motor with that of the pilot motor and intermittently changes the speed of the stoker motor to equate these values. In this manner average stoker speed is held proportional to the boiler air flow.

OIL AND GAS-FIRED BOILERS

There is seldom any question of flexibility in oil or gas-fired boilers. Heat input responds immediately to movement of the fuel valve and steam pressure control is comparatively simple. The range of many oil and gas burners is limited, since reducing fuel and air supply to the burner reduces the burner velocities and impairs the mixing of fuel and air. Because of the limited burner range the functioning of the combustion control system depends on proper manual changing of burners and burner tips to maintain the control equipment within the operating range of the burners.

AIR FLOW AND FURNACE DRAFT

In any boiler control the air flow may be controlled by changing the induced draft, and the furnace draft by changing the forced draft, or the air flow may be controlled by changing the forced draft, and the furnace draft by changing the induced draft. Although there is difference of opinion as to which method is superior, both are used successfully.

Either the forced or the induced draft may be changed by damper control, fan-speed control or by controlling both damper and fan speed. With turbine drive or hydraulic-coupling drive, fan-speed control alone may be used for the forced draft over the entire range and for the

(*Continued on Page 23*)

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Contributions on subjects pertaining to cotton, its manufacture and distribution, are requested. Contributed articles do not necessarily reflect the opinion of the publishers. Items pertaining to new mills, extensions, etc., are solicited.

Better Business

Better business for cotton mills seems to be the reports throughout the world and the improvement in the volume of orders seem to have come without any material increase in export business.

It had been expected that immense Government expenditures in this country and the turning loose of bonus money would ultimately result in a good retail trade, but from England and other countries come reports of increased activity for cotton mills and better prices for cotton goods and yarns.

During the ten months of the current season so far, Great Britain's mills have used more cotton than in the corresponding period of any previous season since 1928-29, according to the New York Cotton Exchange Service, which regards this development as one of the "brightest phases of the world cotton spinning industry." British consumption of cotton of all growths during the period was 2,338,000 bales. British spinners are using a greater proportion of American cotton this year than last season.

Great Britain, it appears, has greatly developed its domestic market for cotton manufacturers and that domestic market has to a large degree replaced its export trade.

The two days prior to the Fourth of July holidays witnessed, in Worth Street, sales of more than 10,000,000 yards of print cloths and most of the sales were at advanced prices.

Independence Day has been the occasion in recent years for a suspension of textile mill activities for a week or so—but not this year. The mills have orders which they want to fill and they are finding it worth while to continue operations at a normal rate, as the Fourth of July came upon Saturday there was little reduction in output as the result of same.

Mill operatives have suffered so much during recent years from enforced idleness that they had no desire for a vacation at this time.

The outlook at this time is very bright provided mills sit steady and do not kill the present demand with too great an increase in production.

For the present, at least, the 40-hour week should be preserved and demand allowed to advance prices to a more profitable level.

Louisiana Rejects Child Labor Amendment

The Louisiana House of Representatives rejected the Federal Child Labor Amendment by a vote of 80 to 9. They rejected the amendment in 1924 and again in 1934 and this third rejectment by a vote of 80 to 9 indicates that Louisiana believes itself capable of handling the affairs of its own people and that it feels that it can do without the assistance of the U. S. Department of Labor.

President Angell Agrees With Governor Roosevelt

In a recent address President Angell of Yale University said:

> History is too rich in disastrous examples of attempts by zealous and even altruistic people to exercise peculiar and absolute power over others to convince me that possession of irresponsible power can remain beneficent, no matter how high-sounding and sincere are the allegations of those vested with such power.

It seems to us that Presdent Angell has the same views as Governor Franklin D. Roosevelt of New York had in 1930 when he said in a radio address:

> The doctrine of regulation and legislation by "master minds," in whose judgment and will all the people may gladly and quietly acquiesce, has been too glaringly apparent at Washington during these last ten years. Were it possible to find "master minds" so unselfish, so willing to decide unhesitatingly against their own personal interest or private prejudices, men almost God-like in their ability to hold the scales of justice with an even hand—such a Government might be in the interest of the country, but there are none such on our political horizon, and

> we cannot expect a complete reversal of all the teachings of history.

We agree with President Angell that "history is too rich in disastrous examples" and with Governor Roosevelt that "we can not expect a complete reversal of all the teachings of history."

Why Recovery Has Lagged

MERLE THORPE, editor of *Nation's Business*, asserted in a recent address that the Government "can not of itself create a single thin dime," and said:

> Political government can not, inherently, create a wealth producing enterprise. This truth applies to the present administration, to all past administrations and it will apply to future administrations.

Listing "experiments in the field of trade," "threat of political competition," "administrative law-making," and "fear that the value of money may be changed," as causes of what he called "business hesitancy," Thorpe added:

> These actions of political government—however well-intentioned—have struck at the motivating forces of business activity. The savings of the people, from which all taxation must come, are being diverted from wealth producing enterprises to the overhead expense of the nation.

Social Security By Compulsion

(Charleston News and Courier)

Fancy that South Carolina had a czar, a good, honest, brave czar with a heart of gold overflowing with loving-kindness, and he should say to Johnsmith, prosperous farmer:

"Your neighbor Sambrown is out of a job and has sickness in his family. You're got to work for him one day in the week and give him part of your crop—otherwise I'll take it from you anyway and send you to jail besides."

Would that be right? Remember that the czar is a good man, and the sheriff and the army are at his back.

"Yes, it would be right," you say, "if the majority of the people vote for the czar; I believe in government by the majority."

That is good Democratic reasoning, but the question arises, "Who make up the majority?"

The Sambrowns, the unfortunate, the unemployed, the aged, they vote as well as the Johnsmiths. They may be more than the Johnsmiths, or at any rate, may be enough to swing the election of the representatives who elect the czar or do his bidding in Congress and the Legislatures. It may be no fault of their own, but the Sambrowns are dependents, having nothing, at time of election producing nothing.

The Sambrowns are pretty sure to uphold the czar in dividing the crops of the Johnsmiths with themselves. Do not the Sambrowns include the salary-drawers, the relief-administrators, the benefit-getters, the bonus-receivers, and do not their votes count just as much as do those of the workers, the producers, the sweaters, who are given nothing by Government?

Are not the office-holders, the Congressmen, also mendicants, beggars for votes?

What chance has farmer Johnsmith? Would he not as well make up his mind to work part of his time in future to support those who don't work? If he has got to do it at the muzzle of the sheriff's or the tax collector's gun, why not do it gracefully? Why mouth about it?

Compulsion of the Johnsmiths to support the Sambrowns is "social security," and social security is humanitarianism.

The votes of the Sambrowns in the primaries and elections are the compulsion, and the tribe of Sambrown includes the office-holders, the salary-drawers from Government.

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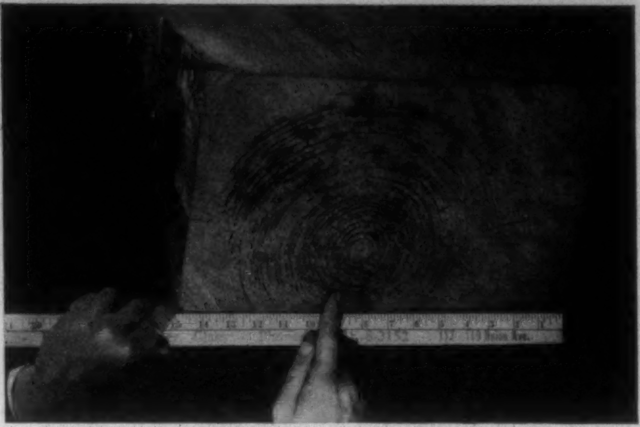
Fool's Gold

> The glittering particles of worthless mica found in the sands of the many streams in the West and Alaska deceived innumerable untrained prospectors who had gone out, full of hope and ambition, to locate Nature's hidden stores of real gold. Posting their location notices and believing that they were rich beyond even the fondest dreams of avarice, they hastened to the nearest mining camp there to celebrate their good fortune in days and nights of riotous spending. When they had exhausted their available cash and much of the credit they had gained by telling of their discovery, they retired to sleep off the debauch. Upon awakening, they were informed by some old-timer that what they had found was nothing but worthless fools gold.
>
> The enchanting promises of paternalism under the name of a New Deal have, like the false gold of the foolish prospectors, deceived many minds. Those who believe they have found the key to the vault in which is stored the real gold of "a new social order" that will buy "a more abundant life," and "greater security for all," have posted their location notices upon the door of the Federal Government and are celebrating by the riotous spending of public funds. When at last they have exhausted the taxpayers' ready cash and mortgaged all wealth, thus ruining the credit of the nation, they will retire to sleep off the debauch. Upon awakening, they will be informed by those who saw the folly of it all, that what they found was nothing but another kind of worthless fools gold.

The above is the foreword of an interesting book, "Fool's Gold," published by Madison & Marshall, 18 East 48th St., New York. The author uses the pen name, "The Senator from Alaska." Price $2.00.



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The Effect of the Tariff on the Textile Industry

(Continued from Page 5)

also are a very good consensus of the other American textile manufacturers I have met and talked with about this matter.

More interesting is the reaction the tariff increases had on the minds of our Japanese competitors.

Mr. Shingo Tsuda, the president of a big Japanese spinning company, addressing his own countrymen, said this:

"Even if nations raise import duties to such high levels as 70 or 80 per cent ad valorem against Japanese goods, fear is unnecessary. The facts show that the foreign demand for Japanese cotton goods will increase in proportion to increases in tariff rates against them, and even limitless increases in tariff will be utterly ineffective to prevent the movement of our goods."

These exact words deserve to be well marked and noted, but listen to this—I am quoting this same Japanese industrialist:

"A majority of the people in any country are consumers, as are likewise the customs officials. This at once hints that smuggling will be rife when high tariff rates prevail. The smuggling is not conducted by us, but by business men of the countries which set up a high tariff and therefore it is not necessary for the Japanese government to interfere with such a practice."

That is a very bold statement.

Mr. Tsuda's comment surely lends force and point to the barrage of criticism we have directed against the State Department's "Gentlemen's Agreement" plan. In the light of Mr. Tsuda's words, little argument is needed to show up the futility of such experiments.

Great Britain, another competitor of Japan's, wasted no effort or time on "gentlemen's agreements." Two years ago they established a quota system that worked effectively. This week in the press we find this item: "Quotas in British colonies have checked Japanese cotton cloth exports since their imposition in 1934. Japanese traders have been trying to ship finished clothing in order to get past the restrictions. They find the British authorities thoroughly conversant with what is going on and planning to pass quotas for these lines as well."

Pretty smart and alert for a so-called Free Trade country.

If the State Department would consult with the industries affected before entering upon agreements or proclaiming reciprocal plans, we might be able to work out some plan that would be practical. The secrecy feature of reciprocity is the main objection of industrialists. The law requires that before the signing of these treaties "reasonable public notice" is to be given "in order that any interested party may have an opportunity to present his views." We do not know what is being proposed; there are no hearings in the proper sense of the term. We do not learn the details of what the new treaty may contain until the actual publication of the treaty text itself, when it is too late to do anything.

Very likely these thoughts occur to you: How much protection is necessary to maintain the American standard of living? How are we to determine what rate of duty will be effective without permitting either labor or industry an opportunity to profiteer at the expense of the rest of the community?

It is impossible to say what rate or type of duty will afford proper protection. A rate that is effective in normal times will be ineffective in abnormal times; another may be effective at all times and another ineffective at any time.

The manufacturer certainly cannot suggest a proper rate. He probably would ask for more than he really needs rather than take a chance on being ruined.

Congress cannot determine a perfect rate.

The Tariff Commission does not know.

It is impossible to assemble the data necessary for a proper calculation.

When Congress attempts handling the problem, it is liable to develop into a battle of parties. The violence of the discussion would engender such uncertainty that industry is bound to hesitate.

The elaborate investigations by the Tariff Commission in different foreign countries reveal that it is more expensive to manufacture in one country than in another, but how much more expensive no one can tell.

If there were some scientific day of framing a tariff most of us would be happy, but there is none and never can be one. The most that can be done is to watch the movement of commodities in foreign and domestic commerce, and as a result of such observation draw some conclusion as to whether or not the actual duties are reasonably effective in reserving the domestic market as an outlet for products of our industries.

In the end it must be by actual test.

Gentlemen, do not forget that every article and every yard of cloth imported displaces an equal amount of the product of an American workman or woman. For instance, if we translate the 58 million yards of cloth imported from Japan in the last 15 months into terms of employment, it means that it displaces the product of 18,000 operatives working about two months, or more graphically, a complete shut-down of a city like my own New Bedford for two months.

Finally, remember this—it would be economic insanity to sacrifice American ideals, American industry, and American labor on the altar of unrestricted international trade.

Formadine Dark Brown RB

John Campbell & Co. recently announced that they have completed the manufacture of a commercial batch of Formaldehyde brown which is an allied color to their Formadine Black and Formadine Blue BB. They are calling this color Formadine Dark Brown RB.

The small amounts of formaldehyde brown in this market have been imports and John Campbell & Co. are the first manufacturers of this product in America.

The new color is particularly recommended for dyeing rayon. It is the forerunner of yellower and lighter shades of brown that the company expects to bring out in the course of a few months. It is said to have excellent fastness to washing, good discharge properties and is suitable for all forms of rayon, particularly piece goods and for cotton skein and hosiery dyeing.

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Notes On Cotton Warp Sizing

(*Continued from Page 9*)

benefit of the increased production made possible by the stretch-control device, a special double creel is used, by means of which it is feasible to have unskilled labor count and lease a new set in advance of the time it is required in the slasher.

In the old type slashers, it is stated that irregularities in stretch are due, first, to the yarn slipping on the size rolls as it is drawn from the creel and, second, to the effect of varying weights and tensions on the section-beams. Moreover, the yarn is subjected to excessive strain just after leaving the size-box, when it is wet and therefore most easily stretched.

Instead of the yarn being drawn from the creel, the new device provides a positive feed to the size-roll, delivering the yarn to the size-box at a definite speed. As shown in Figure 1, this is accomplished by taking the yarn off the creel over a 9″ flannel-covered roll, the yarn being held in contact around 80% of the roll-circumference by means of two small idler rolls. The stretch is controlled by adjusting the relative speeds of the feed rolls and the head-end delivery rolls. The head-end delivery roll is geared to the size-box as a unit, so that any desired amount of stretch from zero to the maximum amount of elongation of the yarn is readily obtained by the change gear selection, which determines the relation between delivery-roll speed and feed-roll speed. The gear is so designed that 100-tooth change gear gives a zero stretch; a 101-tooth gear, 1% stretch; a 102-tooth gear, 2% stretch, etc.

CARE OF SLASHER-CYLINDERS

Dents in Cylinders.—The condition of the cylinders play an important part in getting an evenly dried warp. Dents, which are common in most slasher cylinders, are outward knobs protruding above the otherwise smooth copper surface. These dents not only affect the drying efficiency of the cylinder, but also the life of the copper itself. Warps passing over the cylinder contact these high places and in doing so are lifted above the cylinder elsewhere. Wherever this occurs, the warp does not make contact with the hot copper as does the remainder of the warp, thus causing uneven drying. The increased friction occurring constantly on these dents adds considerably to their wear and, if allowed to continue, will eventually wear through the copper.

Loose solder from the buckets and parts of the buckets themselves falling around in the cylinder cause these dents. Bad buckets are usually responsible for the copper on cylinders becoming bulged and, in most instances, the cause of the cylinder-heads blowing out. This is due to the buckets not removing the condensed water and thus letting the water-load get above the tensile strength of the copper. Water in contact with the bottom of the cylinder also lessens the efficiency of the cylinder by lowering the temperature there.

Patching Holes.—A great many holes and leaks in cylinders have been patched by soldering. Others have copper patches riveted over them and solder over the rivets, while some are brazed with bronze. All of the above will stop the leak temporarily, but leave a great hazard, for in addition to the repair being temporary considerable thickness to the copper is added. This reduces the efficiency and creates a rough place which may snag the warp threads.

A great many cylinders begin leaking at the seam. These fractures occur more often on the large cylinder than on the small one. This is due to the fact that there are two seams in the large cylinder and only one in the small cylinder; also because the large cylinder is subjected to greater stresses. When these fractures occur, the sooner they are repaired the better, otherwise they will continue to tear until they have reached the outside heads. When a fracture-seam extends to the head, it is necessary to remove the cylinder from the frame and take the heads off to make repairs.

LOOM STOPS

An analysis of the production from the loom made by the British Cotton Industry Research, showed that the rate of breakage of warp threads was controlled by the sizing, and therefore the weaving was also dependent on the amount of size on the warp. When the broken threads were examined for the cause of break, it was often possible to find an imperfection in the yarn which caused the breakage. The place of breakage was considered and the breaks occurring between the beam and heddles were few and independent of the amount of size. In the heddles the breakages were fairly frequent in undersized warps, falling off where sufficient size was present, and tended to increase again when the amount of size was excessive. In the reed the number of breakages was fairly steady except in undersized warps.

The number of loom stops per hour on various standard constructions was found to range from 0.26 to 0.86 stops per loom. On constructions with average yarn numbers around 30s, 64 x 60, it was found that 0.75 to 0.85 stops per loom per hour is about normal. On coarser sheetings, however, the maximum was said to be about 0.75 stops per hour.

In mills where looms were equipped with feelers, equally as many or more loom stops were said to be caused by filling breaks as by warp breaks; but in weave rooms where feelers were not used, warp-yarn breakage was found to be responsible for a higher proportion of all loom stops. In one instance where feelers were not used, 70 per cent of all loom stops were said to be due to warp-yarn breaks.

ACKNOWLEDGMENT

The writer is very much indebted to M. D. Shaffner of the Saco-Lowell Shops and T. C. Hazard of the Taylor Instrument Companies for many valuable suggestions.

OBITUARY

FRANK WASHINGTON

Nashville, Tenn.—Frank Washington, 70, president of Washington Hosiery Mills, and former president of Brandon Printing Company, died last Thursday at Ashburn, Ga., relatives here were informed.

O'Bryan Washington, a brother, said death apparently was due to a heart attack. Washington was en route from Fort Myers, Fla., where he had made his home for five years. He had been in ill health.

Dyeing Synthetic Fabrics

(*Continued from Page 13*)

fact that it can be used simultaneously as a scour and bleach. It also opens up a good field for semi-continuous and continuous bleaching and can be used very successfully for acetate rayon. For jig work the average procedure is to run the desized goods through a solution of peroxide and silcate, then heat to 160 degrees F., and maintain at this temperature until bleaching has taken place.

When it is desirable to scour and bleach at the same time this can be effected by running the dry gray goods through the bleach liquor and soap and thus obtaining a thorough impregnation. The temperature is then raised and bleaching takes place gradually. After the bleaching agent is exhausted it will be possible to add more soap and continue to scour until such impurities as sightening colors are completely eliminated. This method can be adapted to continuous work by impregnating the gray goods with a strong solution of bleach liquor and allowing to stand cold for several hours until the bleaching action is completed, then scouring in the continuous machine. When the cloth is in a well scoured condition successful dyeing depends on the proper selectivity of the dyestuffs and any troubles that occur should be traced to this operation and not usually to bad rayons, or faulty gray goods.

Co-Ordination of Boiler Auxiliaries

(*Continued from Page 17*)

induced draft from maximum down to the natural draft. For boiler ratings less than those which can be accommodated by natural draft, damper control must be used in addition to fan-speed control. Maximum economy of fan power with the latter method is obtained by operating the damper and fan-speed changing device in sequence so that the damper is wide open whenever the fan speed is above the idling value.

The hydraulic coupling provides a means of obtaining variable fan speeds with constant-speed fan motors. The change in fan speed is accomplished by changing the quantity of oil in the coupling and is a function of control valve movement multiplied by time. Control of fans driven through hydraulic couplings therefore differs from that of turbine or motor-driven fans where the fan speed is a function of throttle valve or controller position only. For this reason regulators of conventional design which are intended for turbine and motor-speed control and for damper control will not provide satisfactory control of hydraulic coupling-driven fans.

Slip-ring and pole-changing motor-driven fans require damper or vane control as well as fan-speed control to provide small changes in draft. Minimum expenditure in fan power requires that the control equipment be adjusted to increase the fan speed only when the damper is in a wide open position and to decrease it before the damper has throttled to any great extent. Combined damper and fan-speed control is more successful with slip-ring motors than with pole-changing motors since the greater number of speed steps provides less draft disturbance during speed changes.

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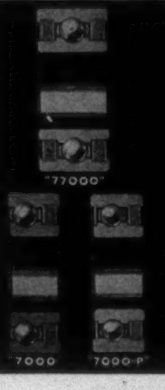

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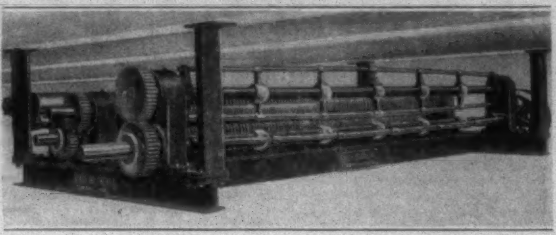

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Mill News Items

BESSEMER CITY, N. C.—The Algodon Manufacturing Company, recently organized at this place, took over the American Cotton Mills, Inc., and the American Cotton Mills No. 2, Inc., which were separate corporations. Mill No. 2 has recently been reduced to 7,000 spindles and 94 looms by discarding old machinery, while Mill No. 1 has 14,800 spindles on coarse yarns.

DAVIDSON, N. C.—The Davidson Cotton Mills are going to put in a dyehouse, to make colored yarns, as soon as the building and equipment are ready. Thomas Webb was recently made president of this mill.

GREENVILLE, S. C.—Capital stock of the Piedmont Shirt Company of Greenville has been increased from $15,000 to $75,000 and its charter amended, converting the 300 shares of no par value common stock to 300 shares of a par value of $100 each.

FLORENCE, ALA.—J. N. Nipper, manager of the Florence Cotton Mill, said the mill would probably resume operation within the next few weeks, following the expenditure of $100,000 in building repairs and new machinery.

SWEETWATER, TENN.—Textile plants suffered damage from a near tornado here.

The new Lorraine Hosiery Mill, which started operations recently, will not be running again for at least 30 days.

Manager Moore estimated that one side was blown in at the Sweetwater Hosiery Mills, which will be out of commission for weeks.

The large steel smokestack crashed down across a warehouse of the American Textile Woolen Company.

LOWELL, N. C.—The plants at Lowell of United Spinners, Inc., and the Peerless Spinning Company have been bought by the president and treasurer of these two companies, W. L. Balthis, and associates, and will be operated under the names of United Spinners Corporation, Peerless Spinning Corporation, and Insulating Yarns, Inc., it was made known by Mr. Balthis.

Coit M. Robinson, formerly with the Old Robinson Mills, at Lowell, will be secretary, and S. N. Boyce, of Gastonia, will be vice-president.

The plants have been operated by Mr. Balthis for a group of banks for the past five years and have been run at a profit. The plants will operate 38,000 spindles, making combed yarns exclusively. These mills were once known and operated by the late H. M. Robinson and John C. Rankin.

Mr. Balthis is head of the cotton firm of W. L. Balthis & Co., of Gastonia. A former director of the old First National Bank of Gastonia, he was engaged to operate the mills after they had been taken over by a group of banks in the Carolinas.

SANFORD, N. C.—A second temporary restraining order was issued last Friday as a result of differences between some of the directors of the Sanford Cotton Mills, and Robert P. Dicks, president and treasurer of the corporation.

The order signed by Judge N. A. Sinclair restrained the directors from holding a special meeting in response to a

Mill News Items

call issued by W. R. Hartness, E. T. Usser, N. R. Bright and Emory C. Green.

In the complaint filed by Mr. Dicks for the mill, it is alleged, among other things, that Hartness is not a legally elected director, as he did not receive a majority of the votes cast at the last annual meeting. In the restraining order Hartness is enjoined from serving as a director until the hearing to be held before Judge Sinclair here on July 20th.

In a temporary restraining order issued on Tuesday by Judge Marshall T. Spears, the directors and stockholders were restrained from holding a special meeting of the stockholders on June 30th. The call for the meeting was signed by the four men named. The hearing in this action was also set for July 20th before Judge Spears in Sanford.

New Holland, Ga.—Installation work is progressing at the local plant of the Pacolet Manufacturing Company, according to D. W. Anderson. Between $400,000 and $450,000 worth of new equipment will be included in the work. The installation is part of an extensive building program which was made necessary by the big tornado which wrecked the Gainesville area last April.

About 25 per cent of the plant is operating now and officials hope to have all units running on full schedule within 60 days, Mr. Anderson said.

The plant employs between 1,100 and 1,200 workers. Approximately $750,000 is being spent on the full project of repairing the plant and homes in the village, and installing new machinery.

The Fiske-Carter Construction Company was awarded contracts for repairing the plant and homes.

Tubize To Enlarge Plants At Rome and Hopewell

Hopewell, Va.—The Tubize Chatillon Corporation will ask stockholders' approval for an expansion program calling for the expenditure of "approximately $2,800,000" on its plants here and at Rome, Ga.

The plan, as outlined in an open letter to stockholders by Roland L. Taylor, chairman of the board, calls for the addition of another unit to the Viscose plant at Rome and the revamping of equipment in the present mill there.

Additional equipment would be installed in the knitting and dyeing plant here at a cost unoffcially estimated at nearly $500,000.

The proposals will be placed before Class A and preferred stockholders at a joint meeting in New York City July 30th. Taylor said in his letter that "a number of substantial holders of preferred stock and Class A stock have already expressed their approval of the proposals."

Replacement of dilapidated machinery in the Hopewell plant has been under way about a year, with most attention being given to the knitting department.

Danielson Mfg. Co. Sued for Infringement

A full accounting of all sales and an assessment of damages are requested of the Federal Court in Greenville, S. C., in a suit that has been brought by the E. H. Jacobs Manufacturing Company of Danielson, Conn., against the Danielson Manufacturing Company for infringement of their reinforced Verybest lug strap patent.

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Originated—Developed—Perfected by SWAN-FINCH
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SLO-FLO outlasts liquid oil 3 to 5 times—saving oiling cost. SLO-FLO remains in the bearings and does not creep or spatter—reducing "oil spots."

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Executive Office:
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WANTED—Loom fixers experienced on silk. Apply by letter, state experience and wages wanted. "Loom Fixers," care Textile Bulletin.

WANTED—Position as overseer carding. 24 years' experience in card room. On present job 15 years. Can furnish A-1 references from former employers. Strictly sober. I. C. S. graduate. Age 40. Can go to work immediately. Address "G. W. H.," care Textile Bulletin.

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Mills Lose Tax Cases

Birmingham, Ala.—Constitutionality of the new Deal Congressional edict that processors must show a burden of loss to receive AAA processing tax refunds was upheld by Federal Judge David J. Davis.

This was the first Federal Court decision requiring that "burden" be shown, and was hailed in Washington by Government attorneys as an "important victory."

Judge Davis formally dismissed petions of four Alabama textile companies seeking processing tax rebates amounting to $51,729,151. The joint plaintiffs contended two sections of the 1936 revenue law, requiring refund applicants to prove they absorbed the processing tax, were unconstitutional in that they "imposed an impossible burden."

All the companies asked the refund as a result of the Supreme Court invalidation of the old Agricultural Adjustment Act.

The companies were Lincoln Mills of Alabama, which sought a $935,721 rebate; the Anniston Manufacturing Company, claiming $269,854; the Standard Coosa-Thatcher Company, asking $311,861, and the Sauquoit Spinning Mills, $211,715.

Federal District Attorney Jim C. Smith said counsel for one of the mills had indicated an appeal will be taken.

Government attorneys, in Washington, said they will ask dismissal of 200 similar suits, involving more than $160,000,000, which are pending in Federal Courts.

Give Details of Road Fabric Developments

Washington.—"Cotton fabrics for bituminous-surfaced roads" is the title of a leaflet just issued by the U. S. Department of Agriculture, Bureau of Agricultural Economics, Division of Cotton Marketing. This is written by R. J. Cheatham, senior cotton technologist, and Rodney Whitaker, associate agricultural economist, in co-operation with the Textile School of North Carolina State College.

"Fabric costs were estimated to range from $450 per mile for the most loosely woven fabric to about $1,150 per mile for the most closely woven and strongest fabric. These costs were estimated upon the basis of the 1935 price levels and costs prevailing, exclusive of the processing tax, in the cotton-textile industry during that year. The fabrics selected as most practicable and included in the specifications cost approximately $450, $600 and $750 per mile in a road 18 feet wide.

"The quantity of cotton required to manufacture these materials varied from 13 bales per mile in the most expensive fabric to only five bales in the least expensive. These figures are only approximate. An adequate basis for estimating the probable mileage of road for which this material may be suited is almost wholly lacking."

Classified Department

WANTED—One Overseer of Weaving with experience on 4 x 1 Box, Dobby and Cam Looms, K Dobby Looms and Plain Two Harness Looms. Prefer man with experience, not over 35 years of age. "Experience," care Textile Bulletin.

WANTED—Position as Superintendent of Plain Weaving or Yarn Mill. Married, age 42. Overseer and superintendent more than 18 years. Start with small salary. Will call my expense to see mill. Very best of references. Address "S. G. D.," care Textile Bulletin.

YOUNG MARRIED MAN, textile education, ten years practical experience, desires position as superintendent, or as overseer carding or spinning. Excellent references. Employed at present. Address "Confidential," care Textile Bulletin.

WANTED—Position as Master Mechanic by thoroughly competent man. Can furnish best of references. Would consider job as electrician. Write "ABC," care Textile Bulletin.

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Japanese Imports High

Statistics from the Department of Commerce show that imports from Japan up until shortly before the President issued his orders increasing the duties were in a fair way to exceed the records of all prior years.

During the first five months of the current year, it was disclosed, imports for consumption were only 3,223,000 square yards short of the entire amount imported in 1935 while, compared with the first five months of last year, they represented an increase of 14,125,000 square yards.

Total imports of Japanese cloth for consumption were placed by the department at 33,252,000 square yards from January through May, compared with 19,127,000 square yards for the comparable period last year and 36,475,000 square yards for the entire year of 1935. General imports of Japanese cloths amounted to 26,843,000 square yards this year compared with 27,989,000 square yards during the first five months of 1935, and 48,976,000 square yards for the entire year.

Increased imports of textiles from Japan first became noticeable in 1934, and as the amounts brought in each month became larger efforts were made by the State Department, in response to the demands of the domestic manufacturers, to seek an arrangement which at least would hold the imports to a specified quota.

These efforts collapsed and the President last month ordered increases of almost 50 per cent in the present tariff rates. Because the rate increases were not effective until June 20th the effect upon imports was not reflected in the figures just compiled by the department.

Hose Shipments Above Production in May

Shipments of hosiery in May, totaling 9,379,143 dozen pairs, ran 110,000 dozen pairs above production and thereby materially reduced stocks on hand at the end of the month, the National Association of Hosiery Manufacturers reported.

Total stocks at the end of May amounted to 19,076,449 dozen pairs, which was 469,732 dozen pairs below the amount on hand at the end of the 1935 month. Stocks of full-fashioned goods, however, were little changed from the figure of last year, totaling 5,061,258 dozen pairs at the end of May.

Women's knee-length hose shipments reached a new high level at 395,561 dozen pairs in May, compared with only 213,591 dozen pairs in the same month last year. Largest shipments were from full-fashioned mills, which accounted for 220,851 dozen pairs against 174,710 dozen pairs of seamless.

Considering results of the first five months of the year as compared with the same period in 1935, the association reports that shipments of all types increased 3.8 per cent and that shipments of women's seamless hosiery went ahead 9 per cent.

Shirt Factory Opens

Goodwater, Ala.—Goodwater's newest business enterprise, the Coosa Shirt Company, will soon begin the manufacture of work shirts, according to announcement by W. D. Fomby and T. H. Neighbors, proprietors. The site of the new industry has been secured and part of the machinery will be employed at first, it was stated.

Rayon Fabric Exports

Cuba was the best customer of America's exports of both woven and knit rayon piece goods in 1935, according to statistics of the U. S. Department of Commerce.

After the Philippines, Canada showed up as the next largest user of both woven and knit rayons. With the exception of the three British dominions, Canada, Australia and New Zealand, practically all of the American exports of rayon woven and knit goods went to Latin America.

Cotton Goods Markets

New York.—Sales of more than 10,000,000 yards of print cloths were credited to the two days before the 4th of July and buying activity has continued this week upon a somewhat reduced scale.

While narrow sheetings were not nearly as active as print cloth yarn goods, they had active periods which involved several million yards. On a good many print cloths price advances were taking effect. Most buyers confined their interest to July and August deliveries. There was a leavening price influence that was working to raise the neglected constructions to the relative poundage parasites of the active styles.

It became evident that buyers were interesting themselves in covering through the last quarter of the year and through the third quarter as well. Mills, as a rule, were not committed to the policy of taking business so far into the future. Frequently selling houses found it expedient to discourage intending customers who sought to cut into their late production. However, there were sources of supply that met some of the late delivery demands of customers. One feature stood out; that quick deliveries of various goods were scarce and every day finds them scarce.

General opinion is that the gray goods market has made a remarkable demonstration during the week—both from the point of view of price and demand and that its strength will be well maintained. One reason for the firmness of print cloths is the difficulty of obtaining raw cotton suitable for their manufacture.

Intimations that prices on certain of the colored goods, such as coverts and chambray, might again be advanced before long were heard in the market. Many of the mills owe more of these goods than has been true in a long time.

A definite start is being made in a corporation printer quarter to advance percale quotations. With an advance of ¼c a yard and the opening of August and September deliveries to buyers the scene is laid for a widespread rising trend on this class of wash goods.

Print cloths, 27-in., 64x60s	4
Print cloths, 28-in., 64x60s	4⅛
Gray goods, 38½-in., 64x60s	5½–5⅝
Gray goods, 39-in., 80x80s	7½
Gray goods, 39-in., 68x72s	6⅜
Brown sheetings, 3-yard	8¼
Brown sheetings, standard	8¼
Tickings, 8-ounce	15–15½
Denims	13
Brown sheetings, 4-yard, 56x60s	7¼
Dress ginghams	16
Staple ginghams	8½

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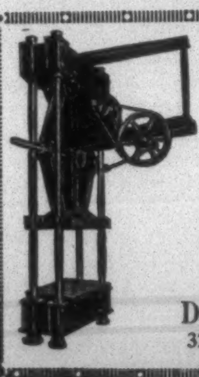

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Cotton Yarn Markets

Philadelphia, Pa.—The cotton yarn market reported business confined to relatively small orders. Prices were firm but not quite as active as last week.

Buyers sought to cover at the prices which were much more readily obtainable at the start of the current week. The spinner attitude has shown a more definite resistance to bids at under their full holding levels. The result is buyers have found it difficult to negotiate to their satisfaction.

Plush quality is in a well sold condition with some orders for automobile use on spinners' books to run through balance of year. This grade in 30s two-ply held is at 31½c to 32c, but bulk of orders were placed when market was 30c.

Some of the largest producers of combed peeler sale yarn this week withdrew their prices. Partly this was attributed to the cotton situation. Partly it was said to be due to these spinners having booked all the orders they care to take at the prices now obtainable. Simultaneously, all the large processing concerns have now advanced mercerized yarn prices to the higher levels made known last week by one of the leaders. It is now stated that just before this advance, a very substantial volume of mercerized yarn was booked. These developments signify that low priced competition has ended for a large part of the yarn industry.

Important yarn dealers say rush orders are now coming in from weavers and knitters in New England and elsewhere who usually spin their own yarn. These buyers are said to plainly indicate that they care less about price than to get possession of siutable yarn for their purposes as quickly as possible.

It is very probable that some yarn mills which have been idle for one or more years will resume operations and increase to some extent the production of yarns, but there appears to be a demand sufficient to absorb such increased output and the yarns produced by such mills will as a rule be of very low quality due to the inferiority of the machinery and the damage to same which has resulted from the long period of idleness.

Southern Single Skeins

8s	23 -
10s	23½-
12s	23½-
14s	24 -
20s	25 -
26s	29 -
30s	29½-
36s	35½-
40s	36½-

Southern Single Warps

10s	23 -
12s	23½-
14s	24 -
16s	24½-
20s	25 -
26s	29 -
30s	29½-30
40s	36½-

Southern Two-Ply Chain Warps

8s	23½-
10s	24 -
12s	24½-
16s	25½-
20s	26 -26½
24s	28 -
26s	29 -
30s	30 -30½
36s	35 -
40s	37½-

Southern Two-Ply Skeins

8s	23½-
10s	24 -
12s	24½-
14s	25 -
16s	25½-
20s	26 -26½
24s	28 -
26s	29 -
30s	30 -30½
40s	37½-

Duck Yarns, 3, 4 and 5-Ply

8s	23½-
10s	24 -
12s	24½-
16s	25½-
20s	26 -

Carpet Yarns

Tinged carpets, 8s, 3 and 4-ply	20½-21
Colored stripe, 8s, 3 and 4-ply	26 -
White carpets, 8s, 3 and 4-ply	22½-

Part Waste Insulating Yarns

8s, 1-ply	20 -
8s, 2, 3 and 4-ply	20½-
10s, 2, 3 and 4-ply	21½-
12s, 2-ply	22 -
16s, 2-ply	24 -
30s, 2-ply	29 -

Southern Frame Cones

8s	23 -
10s	23 -
12s	23½-
14s	24 -
16s	24½-
18s	25 -
20s	25½-
22s	26 -
24s	27½-
26s	28½-
28s	29½-
30s	30 -
40s	36 -36½

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No good business representative would wear such a laughable combination of clothes and yet many products are packed as ludicrously with colors that clash and designs that don't blend. Such may be obviated and sales may be INCREASED through our

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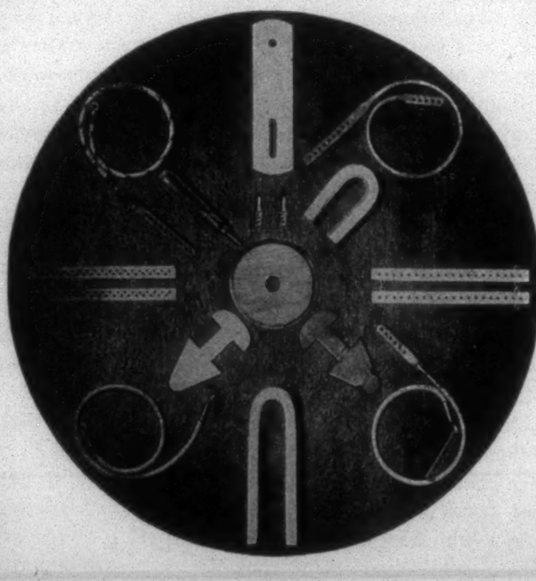

Millbury, Massachusetts

Visiting The Mills

By Mrs. Ethel Thomas Dabbs (Aunt Becky)

IT'S A LONG DROP FROM BLOWING ROCK TO THE VALLEY OF COMMON-PLACE AND WORK

It's a long drop from Blowing Rock and the grandest of all textile meetings to the valley of "Common-Place" and every-day activities. At Blowing Rock I met a charming lady—a real celebrity—Mildred Seydel, of Atlanta—famous traveler, writer and lecturer; she is natural, unaffected, enchanting, and entrancing, irresistable and altogether delightful. I anticipate great pleasure in accepting an invitation to visit her in the near future.

"Bill" Randolph, Jr., Southern manager of the A. E. Staley Mfg. Co., with offices in Atlanta, was another new acquaintance with a fascinating personality and "exuberant enthusiasm." Everybody likes "Bill" for a friend, and knows he is genuine.

And speeches—oratory and all the rest of it, in such capable hands as John A. McFalls, Dr. Murchison, Donald Comer and several others, and last but by no means least, Gordon Cobb, who paid me a beautiful and appreciated tribute in naming me the "Mother and sister of every superintendent and overseer and the loyal friend of every mill worker in the South." He truly understands that my heart and soul has always been in my work for the Southern textile industry; he didn't wait to put roses on my grave but draped me from head to foot in orchids! Thank you, Mr. Cobb. That was the finest compliment ever paid me.

Blowing Rock; Mayview Manor; banquets, delightful entertainments; music that lulled to quiet rest or ecstatic dreaming; old age and youth making merry ripples on the sea of Time. Waking in the night to hear some one quoting out on the lawn (it may have been Jim Greer): "The clink of the ice in the pitcher, as the boy comes down the hall."

Who could feel old in such surroundings as Nature unfolded to delight the vision at Blowing Rock? Not W. E. Hammond, of Balfour, though he confesses to many years service with his Mill Company. Not "Aunt Becky," who has quit having birthdays!

Shakespeare said, "Our remedies in ourselves do lie, Which we ascribe to heaven." Thackery declared: "The world is a looking-glass and gives back to every man a reflection of his own thought." Then in the name of common sense, why don't we always think happy, cheerful thoughts, sending out waves and waves of good will to man? "Laugh and the world laughs with you." Thought and action are closely allied. "As a man thinketh, so is he." Then why flounder in the "Slough of Despond" when we can march proudly erect on the Highway of Happiness reveling in the beauty of golden sunsets and gorgeous rainbows of promise?

Why grow old? Well, I jest pos-i-tive-ly refuse to—I ain't gonna do it—not as long as I feel the reverse, nohow! I defy Old Father Time and his notching stick, soup, milk and mush!

But I've got a vacation, and am supposed to be making readjustments and getting back to normal after that big time in Blowing Rock. So will try to catch up with my travelettes, but am afraid I'll never do it—am so far behind.

FAYETTEVILLE, N. C.

Puritan Weaving Co.

Mr. Strupler, superintendent, says we need more articles on the manufacture of rayon products; rayon is rapidly forging ahead—is a strong rival to cotton and a stronger rival of silk, since the finishers have found new processes that eliminate the tendency to crush and wrinkle. Many of the better grades of rayon are easily mistaken for real silk; they are durable and less expensive, too.

No doubt about it—rayon has come to stay and articles on the subject from some one who is experienced (why not you, Mr. Strupler?) would be really helpful and truly interesting.

Operatives Buying Homes

One of the nicest things about Puritan Mill Co. is the chance given operatives to own the homes they live in. These nice lots and homes of from four to six or more rooms, nicely covered with composition singles and well painted, are all sold except one near the office, which was reserved by the mill company.

These homes are being paid for easily, like rent, and cost on an average of $500. This is less than a lot would cost in the city, and is so close in that all city conveniences are enjoyed.

We are proud of our subscribers at Puritan Mill and thank Mr. Strupler and the overseers—especially Mr.

Duggan and Mr. Sorgee, for their splendid co-operation. Those who signed on the dotted line at this time were: T. L. Duggan, overseer weaving; W. L. Landreth, head loom fixer; C. W. Walden, L. L. Clifton and R. I. Templeton, loom fixers; J. A. Faircloth, warp man, and J. W. Carter, overseer of preparation. Others were already paid in advance.

Tolar, Hart and Holt Mills

It is always a pleasure to call on J. W. Tolar, the genial and progressive secretary and treasurer, and his pleasant office force. This mill and village joins the Puritan Mill property and is a very attractive place, and full of friendly people.

The mill has between 14,000 and 15,000 spindles and manufactures high grade yarns.

Leading key men on the two shifts are C. M. Graddy, W. B. Lovett, C. L. Teal and J. H. Tindall.

RALEIGH, N. C.

Pilot Mills Co.

And what a grand time I had with my good friends, Mr. and Mrs. W. B. Warren, who are among the jolliest, most hospitable and lovable people in Raleigh. "Uncle Hamp" never forgot a visit we had there together and often spoke of "those delightful Warrens," where the "latch string" always hangs out for "Aunt Becky."

There have been a lot of improvements made at Pilot Mill where the product is a wide assortment and various patterns in upholstery, draperies, curtains, etc. This is one mill that pays code wages, and if overtime is necessary, wages are paid accordingly, and the operatives feel blessed to work for such considerate and fair-minded officials.

We have a nice bunch of subscriptions at this place; among recent renewals and additions are: W. M. Richardson, shipping clerk; Basil Reaves, D. M. Dean, R. H. Holt and Buck Cranford, loom fixers; J. J. Strater, section man in spinning; E. B. Covington, overseer finishing; J. E. Baker, second hand in weaving.

CHESTER, S. C.

Springs Mills—Gayles Plant

When this mill was first fully equipped with the best of all machinery and declared to be the first absolutely modern mill in the South, many people had unvoiced questions seething in their minds. Some of the operatives were a bit doubtful of the outcome, and somewhat averse to trying new methods. But now, after a year or more of experience with these new methods, everything is humming along nicely, work running beautifully and nobody hurried or worried.

Every department is remarkably clean and free from the usual lint; I went up and down the spinning room, and never saw an end down; looms were all going; really, nobody seemed busy at anything.

There's only one thing objectionable about all this improved machinery, and that is, so many people lose their jobs where it is installed. But, this being a "machine age," we can expect nothing else.

Girls, Listen to This

H. C. Skelton, bachelor cost-man, needs a wife, but is too busy or bashful to get out and court one. This is leap year, and a chance too good to pass up! So, some of you girls get busy and write Mr. Skelton, Baldwin Station, Shester, S. C. He is good looking, has a fine position and his character is above reproach. Just the right age to get married.

We have a lot of subscribers at this mill among the key men. In fact, about every one of them takes The Bulletin and appreciates it.

L. W. Green, carder and spinner in No. 2 and carder in No. 1, is putting on an extensive safety first drive. At nearly every turn one sees a "Caution" motto and accidents are few and far between.

Earl Carter is assistant overseer carding and spinning No. 2; C. L. Jackson, assistant carder in No. 1; A. V. Wright, overseer spinning in No. 1 on second shift; Roy Hatchell, time keeper carding and spinning; Louis Hughes, card section, and J. P. Dover, card grinder.

O. E. Bishop is the genial overseer weaving, assisted by B. L. Riddlehoover; Fred Bishop, office man; E. L. McCormick, formerly with Oconee Textiles, Inc., Westminster, is designer and assistant superintendent.

A .H. Robbins is general manager; Arthur Jarrett, assistant manager and superintendent; H. C. Skelton, cost man for all three of the Springs Mills at Chester.

We are indebted to Mr. Skelton, Mr. Bishop and others for the following subscriptions sent from second shift, which I did not get to see. Haven't we a right to proud of our friends at Gayle plant?

J. H. Bauknight, assistant overseer No. 2 carding and spinning; E. M. Sweezy, assistant overseer carding No. 1; M. A. Enloe, assistant overseer spinning No. 1; E. C. Gregory, section man in carding; M. E. Varnadore, George Gaddy and J. H. Roberts, spooler section men; John Bunton, assistant overseer, and J. P. Benson, second hand in weaving, second shift; L. J. Benson and A. C. Thompson, loom fixers; E. E. Barnes, slasher foreman, and W. H. Bennett, mechanic.

HIGH POINT, N. C.

Pickett Cotton Mills, Inc.

T. B. Moore, superintendent, and his assistant, D. G. Carter, had things going nicely here, and in good order, but were talking curtailment. Hope it wasn't necessary, after all. Most mills seem to be running better than is the general rule for this time of year.

J. W. Thornburg is overseer carding, and has his department looking real nice. J. H. Allgood is one of his progressive section men. T. B. New is overseer spinning, and knows his yarns.

H. Groce, the elevator man, is one who has as many "ups" as "downs." He was for 35 years an employee in the mill at Worthville.

High Point Yarn Mills

This mill is now "divorced" from Pickett. Sorry to miss seeing our good friend, C. W. Causey, who is in charge. This mill was on short time, but not expecting to remain so. Had the pleasure of seeing W. L. Myers, overseer carding, and C. C. Cranford, card grinder.

Southern Sources of Supply

For Equipment, Parts, Material, Service

Following are the addresses of Southern plants, warehouses, offices, and representatives of manufacturers of textile equipment and supplies who advertise regularly in TEXTILE BULLETIN. We realize that operating executives are frequently in urgent need of information service, equipment, parts and materials, and believe this guide will prove of real value to our subscribers.

ABBOTT MACHINE CO., Wilton, N. H. Sou. Agt., L. S. Ligon, Greenville, S. C.

AKRON BELTING CO., Akron, O. Sou. Branches, 209 Johnston Bldg., Charlotte, N. C.; 905 Woodside Bldg., Greenville, S. C.; 20 Adams Ave., Memphis, Tenn.

ALLIS-CHALMERS MFG. CO., Milwaukee, Wis. Sou. Sales Offices: Atlanta, Ga., Healey Bldg., Berrien Moore, Mgr.; Baltimore, Md., Lexington Bldg., A. T. Jacobson, Mgr.; Birmingham, Ala., Webb Crawford Bldg., John J. Greagan, Mgr.; Charlotte, N. C., Johnston Bldg., William Parker, Mgr.; Chattanooga, Tenn., Tennessee Electric Power Bldg., D. S. Kerr, Mgr.; Cincinnati, O., First National Bank Bldg., W. G. May, Mgr.; Dallas, Tex., Santa Fe Bldg., E. W. Burbank, Mgr.; Houston, Tex., Shell Bldg., K. P. Ribble, Mgr.; New Orleans, La., Canal Bank Bldg., F. W. Stevens, Mgr.; Richmond, Va., Electric Bldg., C. L. Crosby, Mgr.; St. Louis, Mo., Railway Exchange Bldg., C. L. Orth, Mgr.; San Antonio, Tex., Frost National Bank Bldg., Earl R. Hury, Mgr.; Tampa, Fla., 415 Hampton St., H. C. Flanagan, Mgr.; Tulsa, Okla., 18 North Guthrie St., D. M. McCargar, Mgr.; Washington, D. C., Southern Bldg., H. C. Hood, Mgr.

AMERICAN CYANAMID & CHEMICAL CORP., 30 Rockefeller Plaza, New York City. Sou. Office and Warehouse, 301 E. 7th St., Charlotte, N. C., Paul Haddock, Sou. Mgr.

AMERICAN ENKA CORP., 271 Church St., New York City. Sou. Rep., R. J. Mebane, Asheville, N. C.

AMERICAN MOISTENING CO., Providence, R. I. Southern plant, Charlotte, N. C.

AMERICAN PAPER TUBE CO., Woonsocket, R. I. Sou. Rep., Ernest F. Culbreath, P. O. Box 11, Charlotte, N. C.

ARMSTRONG CORK PRODUCTS CO. (Textile Division), Lancaster, Pa. Sou. Office, 33 Norwood Place, Greenville, S. C. T. L. Hill.

ARNOLD, HOFFMAN & CO., Inc., Providence, R. I. Frank W. Johnson, Sou. Mgr., Box 1268, Charlotte, N. C. Sou. Reps., Robert E. Buck, Box 904, Greenville, S. C.; Harold T. Buck, 1615 12th St., Columbus, Ga.; W. Chester Cobb, Hotel Russell Erskine, Huntsville, Ala.

ASHWORTH BROS., Inc., Charlotte, N. C. Sou. Offices, 44-A Norwood Place, Greenville, S. C.; 215 Central Ave., S.W., Atlanta, Ga.; Texas Rep., Textile Supply Co., Dallas, Tex.

ATLANTA HARNESS & REED MFG. CO., Atlanta, Ga. G. P. Carmichael, Atlanta Office; Alabama, Georgia and Mississippi Rep., Barney R. Cole, Atlanta Office; North Carolina and South Carolina Rep., Dave Jones, Greenville, S. C.

BAHNSON CO., THE, Winston-Salem, N. C. North and South Carolina Rep., S. C. Stimson, Winston-Salem, N. C. Sou. Rep., I. L. Brown, 886 Drewery St. N.E., Atlanta, Ga. Northern Rep., F. S. Frambach, 703 Embree Crescent, Westfield, N. J. Western Rep., D. D. Smith, 814 W. South St., Kalamazoo, Mich.

BANCROFT BELTING CO., Boston, Mass. Sou. Rep., Ernest F. Culbreath, P. O. Box 11, Charlotte, N. C.

BARBER-COLMAN CO., Rockford, Ill. Sou. Office, 31 W. McBee Ave., Greenville, S C., J. H. Spencer, Mgr.

BORNE, SCRYMSER CO., 17 Battery Place, New York City. Sou. Mgr., H. L. Siever, P. O. Box 1169, Charlotte, N. C. Sales Reps., W. B. Uhler, 608 Palmetto St., Spartanburg, S. C.; R. C. Young, Jefferson Apts., Charlotte, N. C.; John Ferguson, 303 Hill St., LaGrange, Ga.

BROWN CO., DAVID, Lawrence, Mass. Sou. Reps., Ralph Gossett, Woodside Bldg., Greenville, S. C.; William J. Moore, Woodside Bldg., Greenville, S. C.; Belton C. Plowden, Griffin, Ga.; Gastonia Mill Supply Co., Gastonia, N. C.; Russell A. Singleton, Dallas, Tex.; S. Frank Jones, 209 Johnston Bldg., Charlotte, N. C.; J. Richard Plowden, 421 10th Ave., West, Birmingham, Ala.

BROWN & CO., D. P., Philadelphia, Pa. Sou. Rep., N. W. Pyle, Box 834, Charlotte, N. C.

CAMPBELL & CO., JOHN, 75 Hudson St., New York City. Sou. Reps., M. L. Kirby, P. O. Box 432, West Point, Ga.; Mike A. Stough, P. O. Box 701, Charlotte, N. C.; A. Max Browning, Hillsboro, N. C.

CAROLINA REFRACTORIES CO., Hartsville, S. C.

CHARLOTTE CHEMICAL LABORATORIES, Inc., Charlotte, N. C.

CHARLOTTE LEATHER BELTING CO., Charlotte, N. C.

CHICAGO MILL & LUMBER CO., 614 Johnston Bldg., Charlotte, N. C. Sales Staff, E. J. Mueller, C. P. Semmlow. Executive Offices, 111 W. Washington St., Chicago, Ill. Plants at: Plymouth, N. C., Helena, Ark., Greenville, Miss., Tallulah, La., Chicago, Ill.

CIBA CO., Inc., Greenwich and Morton Sts., New York City. Sou. Offices and Warehouse, Charlotte, N. C.

CLINTON CO., Clinton, Iowa. Sou. Reps., Luther Knowles, Jr., P. O. Box 127, Charlotte, N. C.; T. LeRoy Smith, Box 654, Tel. 2-3921, Charlotte, N. C. Clinton Sales Co., Inc., Byrd Miller, Grady Gilbert, 2 Morgan Bldg., Greenville, S. C.; C. Lee Gilbert, 130 High Point Rd., Box 481, Spartanburg, S. C.; A. C. Boyd, 1071 Bellevue Drive N.E., Tel. Hem. 7055, Atlanta, Ga. Stocks carried at Carolina Transfer & Storage Co., Charlotte, N. C., Consolidated Brokerage Co., Greenville, S. C., Atlanta Service Warehouse Co., Atlanta, Ga.

COMMERCIAL FACTORS CORP., 2 Park Ave., New York City. Sou. Rep., T. Holt Haywood, Reynolds Bldg., Winston-Salem, N. C.

CORN PRODUCTS REFINING CO., 17 Battery Place, New York City. Corn Products Sales Co., Greenville, S. C., John R. White, Mgr.; Corn Products Sales Co., Montgomery Bldg., Spartanburg, S. C., J. Canty Alexander, Asst. Sou. Mgr.; Corn Products Sales Co. (Mill and Paper Starch Div.), Hurt Bldg., Atlanta, Ga., C. G. Stover, Mgr.; Corn Products Sales Co., 824-25 N. C. Bank Bldg., Greensboro, N. C., W. R. Joyner, Mgr.; Corn Products Sales Co., Comer Bldg., Birmingham, Ala., L. H. Kelley, Mgr. Stocks carried at convenient points.

CROMPTON & KNOWLES LOOM WORKS, Worcester, Mass. Sou. Plant, Charlotte, N. C.

CUTLER, ROGER W., 141 Milk St., Boston, Mass. Sou. Agents: B. L. Stewart Roller Shop, Laurinburg, N. C.; Dixie Roller Shop, Rockingham, N. C.; A. J. Whittemore & Sons, Burlington, N. C.; The Georgia Roller Covering Co., Griffin, Ga.; Textile Roll Coverings Works, LaGrange, Ga.; East Point Roller Cov. Co., East Point, Ga.; Dixie Roll & Cot Co., Macon, Ga.; Morrow Roller Shop, Albemarle, N. C.; Peerless Roll Covering Co., Chattanooga, Tenn.; Textile Roll & Cot Co., Dallas, Tex.; Greenville Textile Supply Co., Greenville, S. C.; Anniston Roll Covering Co., Anniston, Ala.

DARY RING TRAVELER CO., Taunton, Mass. Sou. Rep., John E. Humphries, P. O. Box 843, Greenville, S. C.; Chas. L. Ashley, P. O. Box 720, Atlanta, Ga.

DAUGHTRY SHEET METAL CO., Charlotte, N. C.

DILLARD PAPER CO., Greensboro, N. C., Greenville, S. C. Sou. Reps., E. B. Spencer, Box 681, Charlotte, N. C.; Jess Caldwell, East Radford, Va.

DRAPER CORPORATION, Hopedale, Mass. Sou. Rep., E. N. Darrin, Vice-Pres.; Sou. Offices and Warehouses, 242 Forsyth St., S.W., Atlanta, Ga., W. M. Mitchell; Spartanburg, S. C., Clare H. Draper, Jr.

DUNKEL CO., PAUL A., 82 Wall St., New York City.

DU PONT DE NEMOURS & CO., Inc., E. I., Dyestuffs Div., Wilmington, Del. John L. Dabbs, Mgr.; D. C. Newman, Asst. Mgr.; E. P. Davidson, Asst. Mgr.—Technical. Sou. Warehouses, 302 W. First St., Charlotte, N. C. Reps., L. E. Green, H. B. Constable, W. R. Ivey, Charlotte Office; J. D. Sandridge, W. M. Hunt, 1031 Jefferson Standard Bldg., Greensboro, N. C.; B. R. Dabbs, John L. Dabbs, Jr., 715 Providence Bldg., Chattanooga, Tenn.; R. D. Sloan, Amanda Apt., Greenville, S. C.; J. M. Howard, 135 S. Spring St., Concord, N. C.; W. F. Crayton, Dimon Court Apt., Columbus, Ga.; J. A. Franklin, Augusta, Ga.; Tom Taylor, Newnan, Ga.

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EMMONS LOOM HARNESS CO., Lawrence, Mass. Sou. Rep., George F. Bahan, P. O. Box 581, Charlotte, N. C.

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Southern Bearing & Parts Co., Birmingham; Selma Foundry & Machine Co., Selma. Florida—Llewellwyn Machinery Corp., Miami; Harry P. Leu, Inc., Orlando; Johnston Engineering Corp., St. Petersburg; Southern Pump & Supply Co., Tampa. Georgia—Fulton Supply Co., Atlanta; Corbin Supply Co., Macon; Mill & Ship Supply Co., Savannah (formerly John D. Robinson Co. Mississippi—Soule Steam Feed Works, Meridian. North Carolina—McLeod Leather & Belting Co., Greensboro; Odell Mill Supply Co., Greensboro. South Carolina—Greenville Textile Supply Co., Greenville. Tennessee—Rogers-Bailey Hardware Co., Chattanooga; Browning Belting Co., Knoxville; J. E. Dilworth Co., Memphis; Nashville Machine & Supply Co., Nashville. Virginia—Todd Co., Inc., Norfolk; Smith-Courtney Co., Richmond; Johnston Electric Co., Staunton. West Virginia—Central Electric Repair Co., Fairmont.

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GREENVILLE BELTING CO., Greenville, S. C.

GREENSBORO LOOM REED CO., Box 1375, Greensboro, N. C. Phone Greensboro 5071 collect. Geo. A. McFetters, Pres. and Mgr.; Geo. H. Batchelor, sales manager.

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HART PRODUCTS CORP., 1440 Broadway, New York City. Sou. Reps., Samuel Lehrer, Box 234, Spartanburg, S. C.; Talley W. Piper, P. O. Box 534, Fairfax, Ala.; L. R. Unruh, P. O. Box 1602, Charlotte, N. C.

H & B AMERICAN MACHINE CO., Pawtucket, R. I. Sou. Offices, 815 The Citizens and Southern National Bank Bldg., Atlanta, Ga., J. C. Martin, Agt.; Johnston Bldg., Charlotte, N. C.; J. W. Rimmer, Mgr.; Fritz Zweifel, Fred Dickinson, Jim Miller, sales and service representatives.

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HERMAS MACHINE CO., Hawthorne, N. J. Sou. Rep., Carolina Specialty Co., P. O. Box 520, Charlotte, N. C.

HOUGHTON & CO., E. F., 240 W. Somerset St., Philadelphia, Pa. Sou. Sales Mgr., W. H. Brinkley, 1410 First National Bank Bldg., Charlotte, N. C. Sou. Reps., Walter Andrews, 1306 Court Square Bldg., Baltimore, Md.; C. L. Elgert, 1306 Court Square Bldg., Baltimore, Md.; C. B. Kinney, 1410 First National Bank Bldg., Charlotte, N. C.; D. O. Wylie, 1410 First National Bank Bldg., Charlotte, N. C.; J. J. Reilly, 2855 Peachtree, Apt. No. 45, Atlanta, Ga.; James A. Brittain, 1526 Sutherland Place, Homewood, Birmingham, Ala.; J. W. Byrnes, 333 St. Charles St., New Orleans, La.; B. E. Dodd, 333 St. Charles St., New Orleans, La.

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Interesting Developments in Cotton Fabrics

(*Continued from Page 10*)

4 is a rich navy with the neat pattern in soft medium green and white. No. 5 is black with a scattered Greek key design in white and dull red, the white designs predominating. Another chalis was warm hunter's green as to background, with two inter-laced links, one bright red, the other white, printed at wide intervals.

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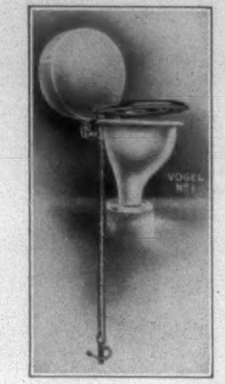

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